

**FLUOROMONOMERS AND PPA
MANUFACTURING PROCESSES
EMISSIONS TEST REPORT**
TEST DATES: 26 FEBRUARY – 2 MARCH 2018

**THE CHEMOURS COMPANY
FAYETTEVILLE, NORTH CAROLINA**

Prepared for:

THE CHEMOURS COMPANY
22828 NC Hwy 87 W
Fayetteville, North Carolina 28306

Prepared by:

WESTON SOLUTIONS, INC.
1400 Weston Way
P.O. Box 2653
West Chester, Pennsylvania 19380

28 March 2018

W.O. No. 15418.002.002

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1. INTRODUCTION

1.1 FACILITY AND BACKGROUND INFORMATION

The Chemours Fayetteville Works (Chemours) is located in Bladen County, North Carolina, approximately ten miles south of the city of Fayetteville. Chemours operating areas on the site include the Fluoromonomers, IXM and Polymer Processing Aid (PPA) manufacturing areas, Wastewater Treatment, and Powerhouse.

Chemours contracted Weston Solutions, Inc. (WESTON) to perform HFPO Dimer Acid emission testing on two sources at the facility (Vinyl Ethers (VE) South Stack and the PPA Stack). Testing was performed on 26 February – 2 March 2018 and generally followed the “Emissions Test Protocol” reviewed and approved by the North Carolina Department of Environmental Quality (NCDEQ). This report provides the results from the emission test program.

1.2 TEST OBJECTIVES

The specific objectives for this test program were as follows:

- Measure the emissions concentrations and mass emissions rates of HFPO Dimer Acid from the VE South stack and PPA stack which are located in the Fluoromonomers and PPA processes.
- Monitor and record process and emissions control data in conjunction with the test program.
- Provide representative emissions data.

1.3 TEST PROGRAM OVERVIEW

During the emissions test program, the concentrations and mass emissions rates of HFPO Dimer Acid were measured on two sources (VE South and PPA Stacks).

Tables 1-1 and 1-2 provide a summary of the test locations and the parameters that were measured along with the sampling/analytical procedures that were followed.

Section 2 provides a summary of test results. A description of the processes is provided in Section 3. Section 4 provides a description of the test locations. The sampling and analytical procedures are provided in Section 5. Detailed test results and discussion are provided in Section 6.

Appendix C includes the summary reports for the laboratory analytical results. The full laboratory data packages are provided in electronic format and on CD with each hard copy.

Table 1-1
Sampling Plan for VE South Stack

Sampling Point & Location		VE South Stack			
Number of Tests:		3			
Parameters To Be Tested:	HFPO Dimer Acid (HFPO-DA)	Volumetric Flow Rate and Gas Velocity	Carbon Dioxide	Oxygen	Water Content
Sampling or Monitoring Method	EPA M-0010	EPA M1, M2, M3A, and M4 in conjunction with M-0010 tests	EPA M3A		EPA M4 in conjunction with M-0010 tests
Sample Extraction/ Analysis Method(s):	LC/MS/MS	NA ⁶	NA		NA
Sample Size	> 1m ³	NA	NA	NA	NA
Total Number of Samples Collected ¹	3	3	3	3	3
Reagent Blanks (Solvents, Resins) ¹	1 set	0	0	0	0
Field Blank Trains ¹	1 per source	0	0	0	0
Proof Blanks ¹	1 per train	0	0	0	0
Trip Blanks ^{1,2}	1 set	0	0	0	
Lab Blanks	1 per fraction ³	0	0	0	0
Laboratory or Batch Control Spike Samples (LCS)	1 per fraction ³	0	0	0	0
Laboratory or Batch Control Spike Sample Duplicate (LCSD)	1 per fraction ³	0	0	0	0
Media Blanks	1 set ⁴	0	0	0	0
Isotope Dilution Internal Standard Spikes	Each sample	0	0	0	0
Total No. of Samples	7 ⁵	3	3	3	3

Key:

¹ Sample collected in field.

² Trip blanks include one XAD-2 resin module and one methanol sample per sample shipment.

³ Lab blank and LCS/LCSD includes one set per analytical fraction (front half, back half and condensate).

⁴ One set of media blank archived at laboratory at media preparation.

⁵ Actual number of samples collected in field.

⁶ Not applicable.

Table 1-2
Sampling Plan for PPA Stack

Sampling Point & Location		PPA Stack				
Number of Tests:		4 (2 tests during Hydrolysis and 2 tests during Vaporization)				
Parameters To Be Tested:		HFPO Dimer Acid (HFPO-DA)	Volumetric Flow Rate and Gas Velocity	Carbon Dioxide	Oxygen	Water Content
Sampling or Monitoring Method		EPA M-0010	EPA M1, M2, M3A, and M4 in conjunction with M-0010 tests	EPA M3A		EPA M4 in conjunction with M-0010 tests
Sample Extraction/ Analysis Method(s):		LC/MS/MS	NA ⁶	NA		NA
Sample Size		> 1m ³	NA	NA	NA	NA
Total Number of Samples Collected ¹		4	4	4	4	4
Reagent Blanks (Solvents, Resins) ¹		1 set	0	0	0	0
Field Blank Trains ¹		1 per source	0	0	0	0
Proof Blanks ¹		1 per train	0	0	0	0
Trip Blanks ^{1,2}		1 set	0	0	0	
Lab Blanks		1 per fraction ³	0	0	0	0
Laboratory or Batch Control Spike Samples (LCS)		1 per fraction ³	0	0	0	0
Laboratory or Batch Control Spike Sample Duplicate (LCSD)		1 per fraction ³	0	0	0	0
Media Blanks		1 set ⁴	0	0	0	0
Isotope Dilution Internal Standard Spikes		Each sample	0	0	0	0
Total No. of Samples		8 ⁵	4	4	4	4

Key:

¹ Sample collected in field.

² Trip blanks include one XAD-2 resin module and one methanol sample per sample shipment.

³ Lab blank and LCS/LCSD includes one set per analytical fraction (front half, back half and condensate).

⁴ One set of media blank archived at laboratory at media preparation.

⁵ Actual number of samples collected in field.

⁶ Not applicable.

2. SUMMARY OF TEST RESULTS

A total of four test runs were performed on the PPA stack, two tests during the Hydrolysis portion of the process and two tests during Vaporization. Three tests were performed on the VE South stack. It should be noted that the initial test on the VE South stack performed on 26 February 2018 failed the post-test leak check; however, the samples were recovered, analyzed and reported. For test run one on the VE South stack, the process went down for the last eight minutes. Sampling continued during this period. Table 2-1 provides a summary of the HFPO Dimer Acid emission test results. Detailed test results summaries are provided in Section 6.

It is important to note that emphasis is being placed on the characterization of the emissions based on the stack test results. Research conducted in developing the protocol for stack testing HFPO Dimer Acid Fluoride, HFPO Dimer Acid Ammonium Salt and HFPO Dimer Acid realized that the resulting testing, including collection of the air samples and extraction of the various fraction of the sampling train, would result in all three compounds being expressed as simply the HFPO Dimer Acid. However, it should be understood that the total HFPO Dimer Acid results provided on Table 2-1 and in this report include a percentage of each of the three compounds.

Table 2-1
Summary of HFPO Dimer Acid Test Results

Source	Run No.	Emission Rates	
		lb/hr	g/sec
PPA Stack	1 – Vaporization	2.79E-2	3.51E-3
	2 – Vaporization	1.87E-2	2.36E-3
	Average	2.33E-2	2.94E-3
	1 - Hydrolysis	1.31	1.65E-1
	2 - Hydrolysis	1.84	2.31E-1
	Average	1.58	1.98E-1
VE South Stack	1	3.94E-4	4.96E-5
	2	1.48E-3	1.87E-4
	Average ¹	9.37E-4	1.18E-4
	1 Aborted Test	1.32E-3	1.66E-4

1. Average of Run Nos. 1 and 2 only. Aborted test reported separately.

3. PROCESS DESCRIPTIONS

The Fluoromonomers and PPA areas are included in the scope of this test program.

3.1 POLYMER PROCESSING AID (PPA) AREA

The PPA facility produces surfactants used to produce fluoropolymer products at other Chemours facilities, such as Teflon®, as well as sales to outside producers of fluoropolymers.

Process streams are vented to a caustic wet scrubber (ACD-A1) and vented to a process stack (AEP-A1). The process inside the building is under negative pressure and the building air is vented to the process stack (AEP-A1).

3.2 FLUOROMONOMERS

These facilities produce a family of fluorocarbon compounds used to produce Chemours products such as Teflon Polymers and Viton®, as well as sales to outside customers.

The VE South Waste Gas Scrubber is vented to a process stack (NEP-Hdr2). In addition, the following building air systems are vented to this stack:

- Permeators
- RV Catch Pots
- Tower HVAC
- Nitrogen Supply to Catch Tanks
- Catalyst Feed Tank Pot Charge Vent

3.3 PROCESS OPERATIONS AND PARAMETERS

Testing during the following operations provided “normal” conditions while running products and operations that were expected to result in the most conservative (i.e., highest) emissions for the target compound.

Source	Operation/Product	Batch or Continuous
PPA	AF Column Reboiler/Virgin	Continuous once it starts taking off to feed tank (Wed – Fri)
	Pressure Transfers/Virgin or Purified	Batch (pressure transfers from one vessel to another – every 2 hours)
VE South	VES/PMVE/PEVE	Semi-continuous – Condensation is continuous, Two Agitated Bed Reactors are batch for 30-40 mins at end of each run, Refining (ether column) is batch

During the test program, the following parameters were monitored by Chemours and are included in Appendix A.

- PPA Process
 - Caustic Wet Scrubber (ACD-A1)
 - Caustic recirculation flow rate
 - Differential pressure across the packing
- Fluoromonomers Processes
 - VE South Waste Gas Scrubber
 - Caustic recirculation flow rate

4. DESCRIPTION OF TEST LOCATIONS

4.1 PPA PROCESS STACK

Two 4" ID test ports are in place on the 30" ID fiberglass stack. The ports are 12' (4.8 diameters) from the nearest downstream disturbance (waste gas scrubber demister duct) and 32' (12.8 diameters) from the nearest upstream disturbance (stack exit.)

Per EPA Method 1, a total of 24 traverse points (12 per axis) were used for M0010 isokinetic sampling. See Figure 4-1 for a schematic of the test port and traverse point locations.

Note: All measurements at the test location were confirmed prior to sampling.

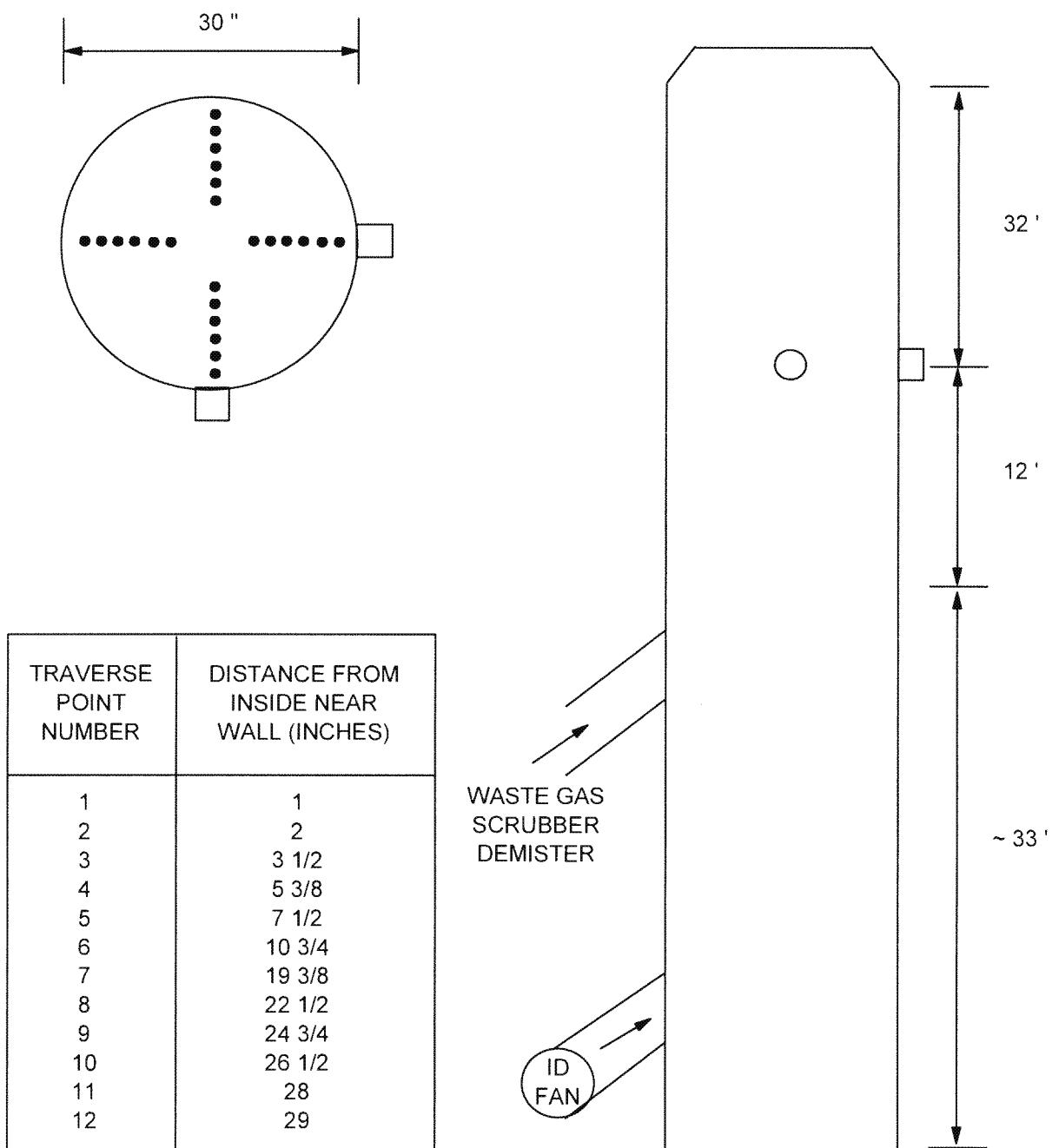
4.2 VE SOUTH SCRUBBER STACK

Two 6" ID test ports are installed on the 42" ID steel stack. The ports are placed 150" (3.6 diameters) from the location where the waste gas scrubber vent enters the stack and 20' (5.7 diameters) from the stack exit.

Per EPA Method 1, a total of 24 traverse points (12 per axis) were used for M0010 isokinetic sampling. It should be noted that near the port locations are a number of small ducts leading to the stack. These are catch pots which, under normal operation, do not discharge to the stack. They are used to vent process gas to the stack in the event of a process upset. For the purpose of test port location, and given the fact that there is no flow from these catch pots, they are not considered a flow contributor or a disturbance.

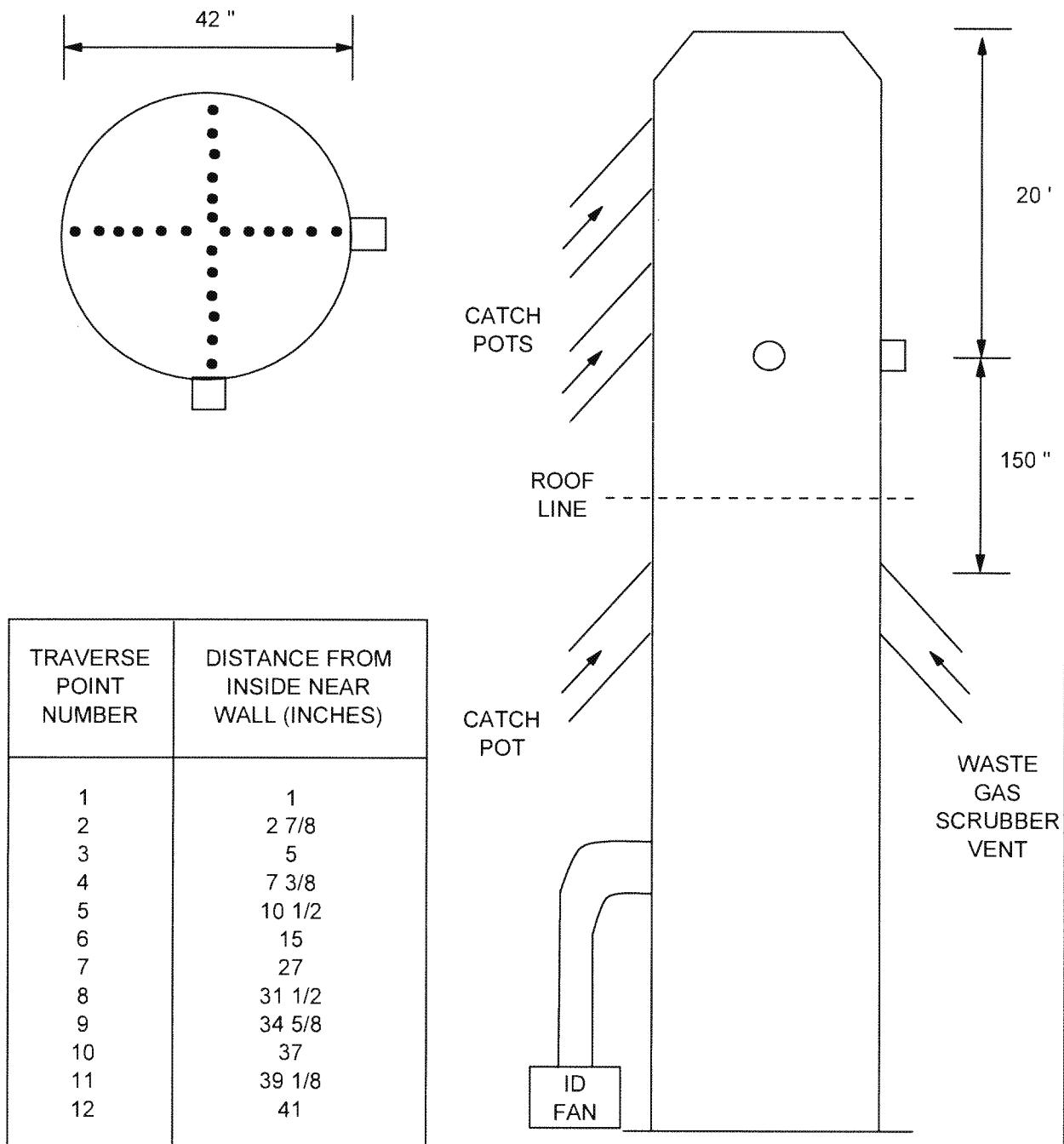
See Figure 4-2 for a schematic of the test port and traverse point locations.

Note: All measurements at the test location were confirmed prior to sampling.



DRAWING NOT TO SCALE

FIGURE 4-1
PPA EXHAUST STACK TEST PORT
AND TRAVERSE POINT LOCATION



DRAWING NOT TO SCALE

**FIGURE 4-2
VE SOUTH SCRUBBER STACK TEST PORT
AND TRAVERSE POINT LOCATION**

5. SAMPLING AND ANALYTICAL METHODS

5.1 STACK GAS SAMPLING PROCEDURES

The purpose of this section is to describe the stack gas emissions sampling trains and to provide details of the stack sampling and analytical procedures utilized during the emissions test program.

5.1.1 Pre-Test Determinations

Preliminary test data were obtained at each test location. Stack geometry measurements were measured and recorded, and traverse point distances verified. A preliminary velocity traverse was performed utilizing a calibrated "S" type pitot tube and an inclined manometer to determine velocity profiles. Flue gas temperatures were observed with a calibrated direct readout panel meter equipped with a chromel-alumel thermocouple. Preliminary water vapor content was estimated by wet bulb/dry bulb temperature measurements.

A check for the presence or absence of cyclonic flow was conducted at each test location. The cyclonic flow checks were negative ($< 20^\circ$) verifying that both sources were acceptable for testing.

Preliminary test data was used for nozzle sizing and sampling rate determinations for isokinetic sampling procedures.

Calibration of probe nozzles, pitot tubes, metering systems, and temperature measurement devices was performed as specified in Section 5 of EPA Method 5 test procedures.

5.2 STACK PARAMETERS

5.2.1 EPA Method 0010

The sampling train utilized to perform the HFPO Dimer Acid sampling was an EPA Method 0010 train (see Figure 5-1). The Method 0010 consisted of a borosilicate nozzle that attached directly to a heated borosilicate probe. In order to minimize possible thermal degradation of the HFPO Dimer Acid, the probe and particulate filter were heated above stack temperature to minimize water vapor condensation before the filter. The probe was connected directly to a heated borosilicate filter holder containing a solvent extracted glass fiber filter.

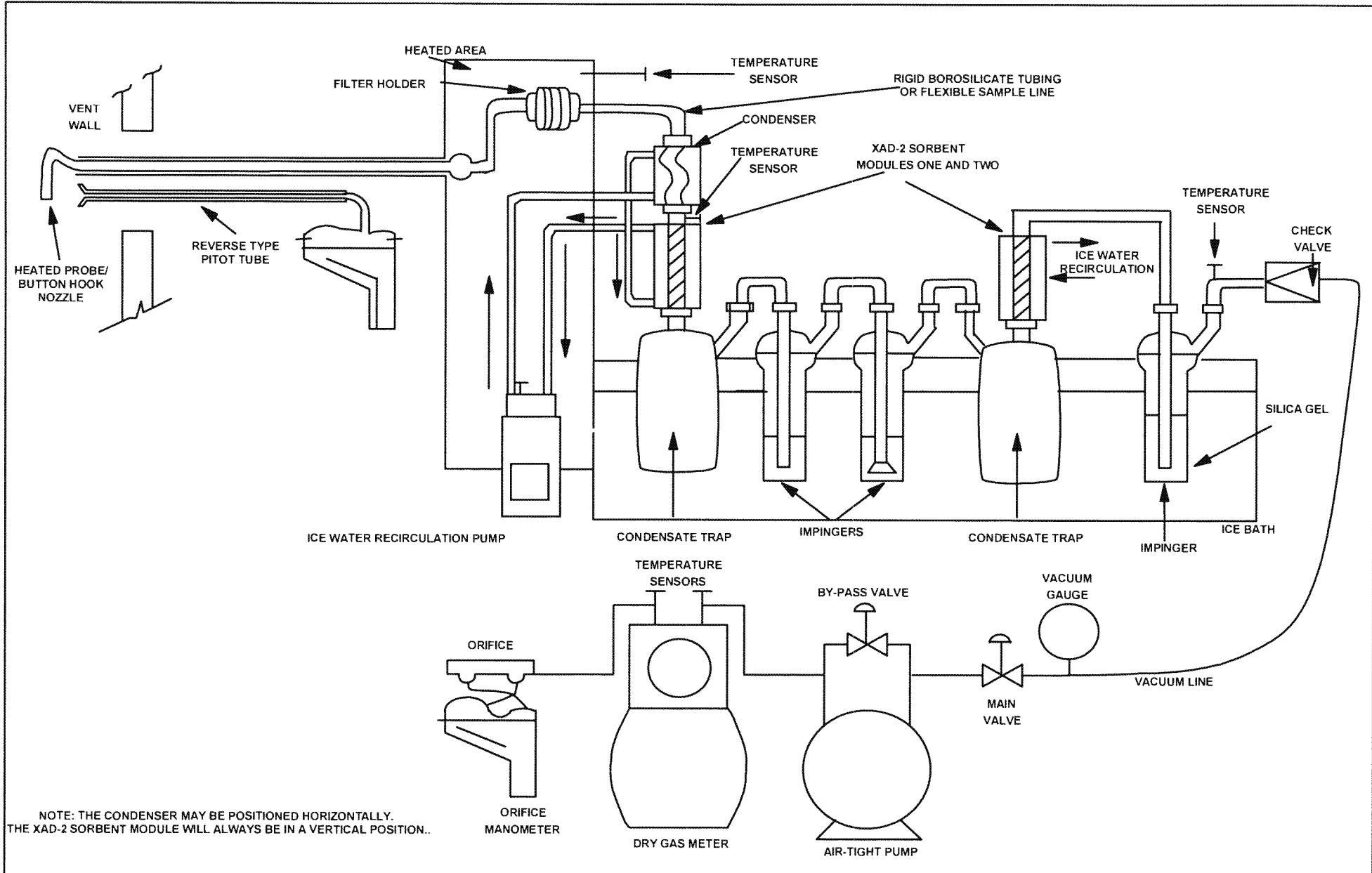


FIGURE 5-1
EPA METHOD 0010 SAMPLING TRAIN

A section of borosilicate glass (or flexible polyethylene tubing) connected the filter holder exit to a Grahm (spiral) type ice water-cooled condenser, an icewater-jacketed sorbent module containing approximately 40 grams of XAD-2 resin. The XAD-2 resin tube was equipped with an inlet temperature sensor. The XAD-2 resin trap was followed by a condensate knockout impinger and a series of two impingers that contained 100-ml of high purity distilled water. The train also included a second XAD-2 resin trap behind the impinger section to evaluate possible sampling train breakthrough. Each XAD-2 resin trap was connected to a 1-L condensate knockout trap. The final impinger contained 300 grams of dry pre-weighed silica gel. All impingers and the condensate traps were maintained in an ice bath. Ice water was continuously circulated in the condenser and both XAD-2 modules to maintain method required temperature. A control console with a leakless vacuum pump, a calibrated orifice, and dual inclined manometers was connected to the final impinger via an umbilical cord to complete the sample train.

HFPO Dimer Acid Fluoride (CAS No. 2062-98-8) that is present in the stack gas is expected to be captured in the sampling train along with HFPO Dimer Acid (CAS No. 13252-13-6). HFPO Dimer Acid Fluoride undergoes hydrolysis instantaneously in water in the sampling train and during the sample recovery step and will be converted to HFPO Dimer Acid such that the amount of HFPO Dimer Acid emissions represents a combination of both HFPO Dimer Acid Fluoride and HFPO Dimer Acid.

During sampling, gas stream velocities were measured by attaching a calibrated "S"-type pitot tube into the gas stream adjacent to the sampling nozzle. The velocity pressure differential was observed immediately after positioning the nozzle at each traverse point, and the sampling rate adjusted to maintain isokineticity \pm 10. Flue gas temperature was monitored at each point with a calibrated panel meter and thermocouple. Isokinetic test data was recorded at each traverse point during all test periods, as appropriate. Leak checks were performed on the sampling apparatus according to reference method instructions, prior to and following each run, component change (if required) or during midpoint port changes.

5.2.2 EPA Method 0010 Sample Recovery

At the conclusion of each test, the sampling train was dismantled, the openings sealed, and the components transported to the field laboratory trailer for recovery.

A consistent procedure was employed for sample recovery:

1. The two XAD-2 covered (to minimize light degradation) sorbent modules (1 and 2) were sealed and labeled.
2. The glass fiber filter(s) were removed from the holder with tweezers and placed in a polyethylene container along with any loose particulate and filter fragments.
3. The particulate adhering to the internal surfaces of the nozzle, probe and front half of the filter holder were rinsed with a solution of methanol and ammonium hydroxide into a polyethylene container while brushing a minimum of three times until no visible particulate remains. Particulate adhering to the brush was rinsed with methanol/ammonium hydroxide into the same container. The container was sealed.
4. The volume of liquid collected in the first condensate trap was measured, the value recorded, and the contents poured into a polyethylene container.
5. All train components between the filter exit and the first condensate trap were rinsed with methanol/ammonium hydroxide. The solvent rinse was placed in a separate polyethylene container and sealed.
6. The volume of liquid in the impingers one, two, and second condensate trap were measured, the values recorded, and sample was placed in the same container as step 4 above and sealed.
7. The two impingers, condensate trap, and connectors were rinsed with methanol/ammonium hydroxide. The solvent sample was placed in a separate polyethylene container and sealed.
8. The silica gel in the final impinger was weighed and the weight gain value recorded.
9. Site (reagent) blank samples of the methanol/ammonium hydroxide, XAD resin, filter and distilled water were retained for analysis.

Each container was labeled to clearly identify its contents. The height of the fluid level was marked on the container of each liquid sample to provide a reference point for a leakage check during transport. All samples were maintained cool.

During each test campaign, a M-0010 blank train was setup near the test location, leak checked and recovered along with the respective sample train. Following sample recovery, all samples were transported to the TestAmerica Inc. for sample extraction and analysis.

See Figure 5-2 for a schematic of the M-0010 sample recovery process.

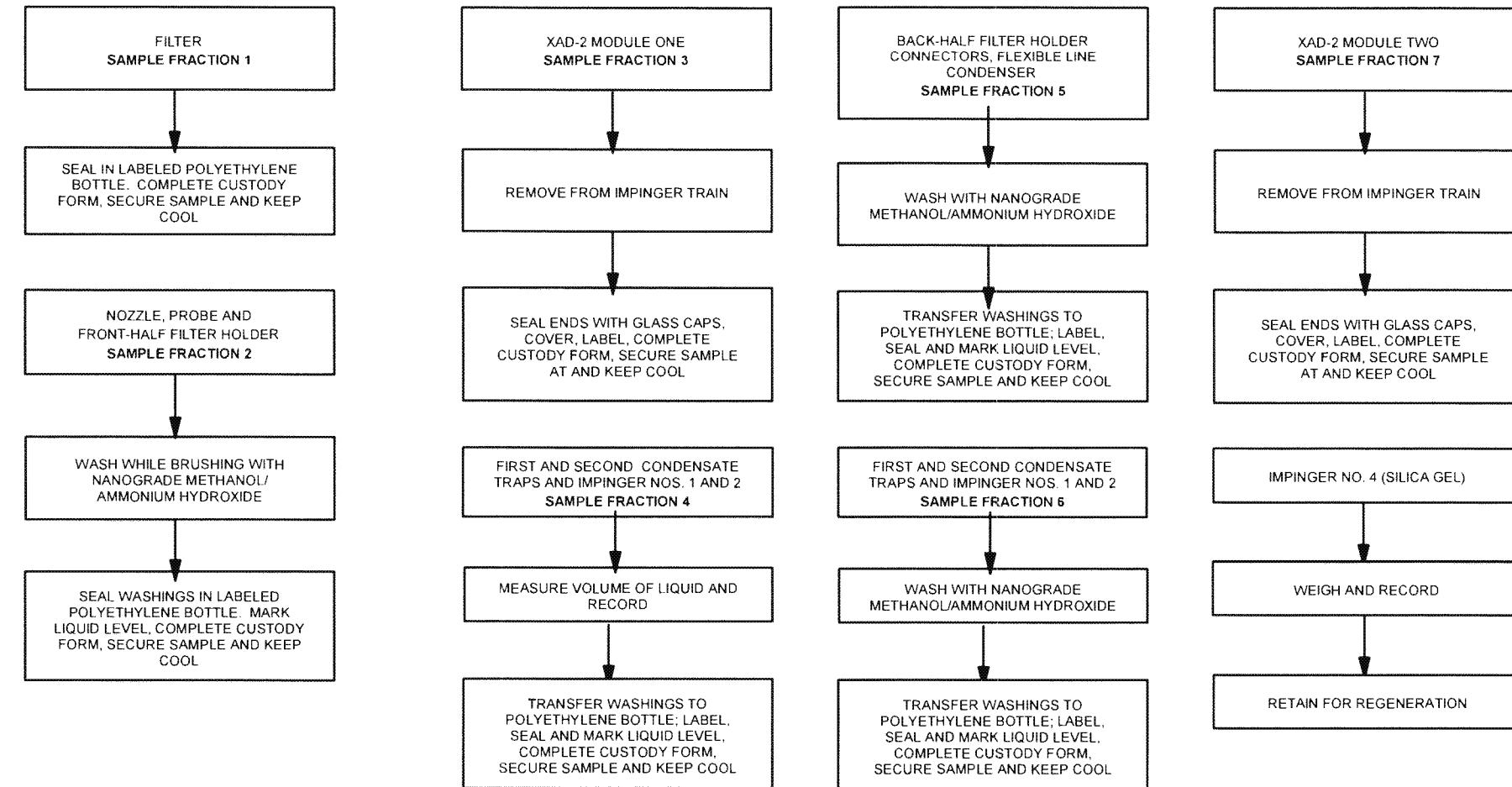


FIGURE 5-2
HFPO DIMER ACID SAMPLE RECOVERY PROCEDURES FOR METHOD 0010

IASDATA\CHEMOURS\15416.002.002\FIGURE 5-2 EPA 0010

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5.2.3 EPA Method 0010 – Sample Analysis

Method 0010 sampling trains resulted in four separate analytical fractions for HFPO Dimer Acid analysis according to SW-846 Method 3542:

- Front-Half Composite—comprised of the Particulate Filter, and the probe, nozzle, and front-half of the filter holder solvent rinses,
- Back-half Composite—comprised of the first XAD-2 resin material and the back-half of the filter holder with connecting glassware solvent rinses,
- Condensate Composite—comprised of the aqueous condensates and the contents of Impingers #1 and 2 with solvent rinses,
- Breakthrough XAD-2 Resin Tube—comprised of the resin tube behind the series of impingers.

The second XAD-2 resin material was analyzed separately to evaluate any possible sampling train HFPO-DA breakthrough.

The Front and Back-half composites and the second XAD-2 resin material were placed in polypropylene wide-mouth bottles and tumbled with methanol containing 5% NH₄OH for 18 hours. Portions of the extracts were processed analytically for the HFPO dimer acid by Liquid Chromatography and dual mass spectroscopy (HPLC/MS/MS). The Condensate composite was concentrated onto a solid phase extraction (SPE) cartridge followed by desorption from the cartridge using methanol. Portions of those extracts were also processed analytically by HPLC/MS/MS.

Samples were spiked with isotope dilution internal standard (IDA) at the commencement of their preparation to provide accurate assessments of the analytical recoveries. Final data was corrected for IDA standard recoveries.

Test America developed detailed procedures for the sample extraction and analysis for HFPO Dimer Acid. These procedures were incorporated into the test protocol and are summarized in Appendix C.

5.3 GAS COMPOSITION

The WESTON mobile laboratory equipped with instrumental analyzers was used to measure carbon dioxide (CO₂) and oxygen (O₂) concentrations. A diagram of the WESTON sampling system is presented in Figure 5-3.

The sample was collected at the exhaust of the Method 0010 sampling system. The sample was drawn through the heated probe, filter and impingers which acted as a sample conditioner. At the end of the line, a tee permitted the introduction of calibration gas. The output from the sampling system was recorded electronically, and one-minute averages were recorded and displayed on a data logger.

Each analyzer was set up and calibrated internally by introduction of calibration gas standards directly to the analyzer from a calibration manifold. The calibration manifold is designed with an atmospheric vent to release excess calibration gas and maintains the calibration at ambient pressure. The direct calibration sequence consisted of alternate injections of zero and mid-range gases with appropriate adjustments until the desired responses were obtained. The high range standards were then introduced in sequence without further adjustment.

The sample line integrity was verified by performing a bias test before and after each test period. The sampling system bias test consisted of introducing the zero gas and one up range calibration standard in excess to the valve at the probe end when the system was sampling normally. The excess calibration gas flowed out through the probe to maintain ambient sampling system pressure. Calibration gas supply was regulated to maintain constant sampling rate and pressure. Instrument bias check response was compared to internal calibration responses to insure sample line integrity and to calculate a bias correction factor after each run using the ratio of the measured concentration of the bias gas certified by the calibration gas supplier.

The oxygen and carbon dioxide content of each stack gas was measured according to EPA Method 3A procedures which incorporate the latest updates of EPA Method 7E. A Servomex Model 4900 analyzer (or equivalent) was used to measure oxygen content. A Servomex Model 4900 analyzer (or equivalent) was used to measure carbon dioxide content of the stack gas. Both analyzers were calibrated with EPA Protocol gases prior to the start of the test program and performance was verified by sample bias checks before and after each test run.

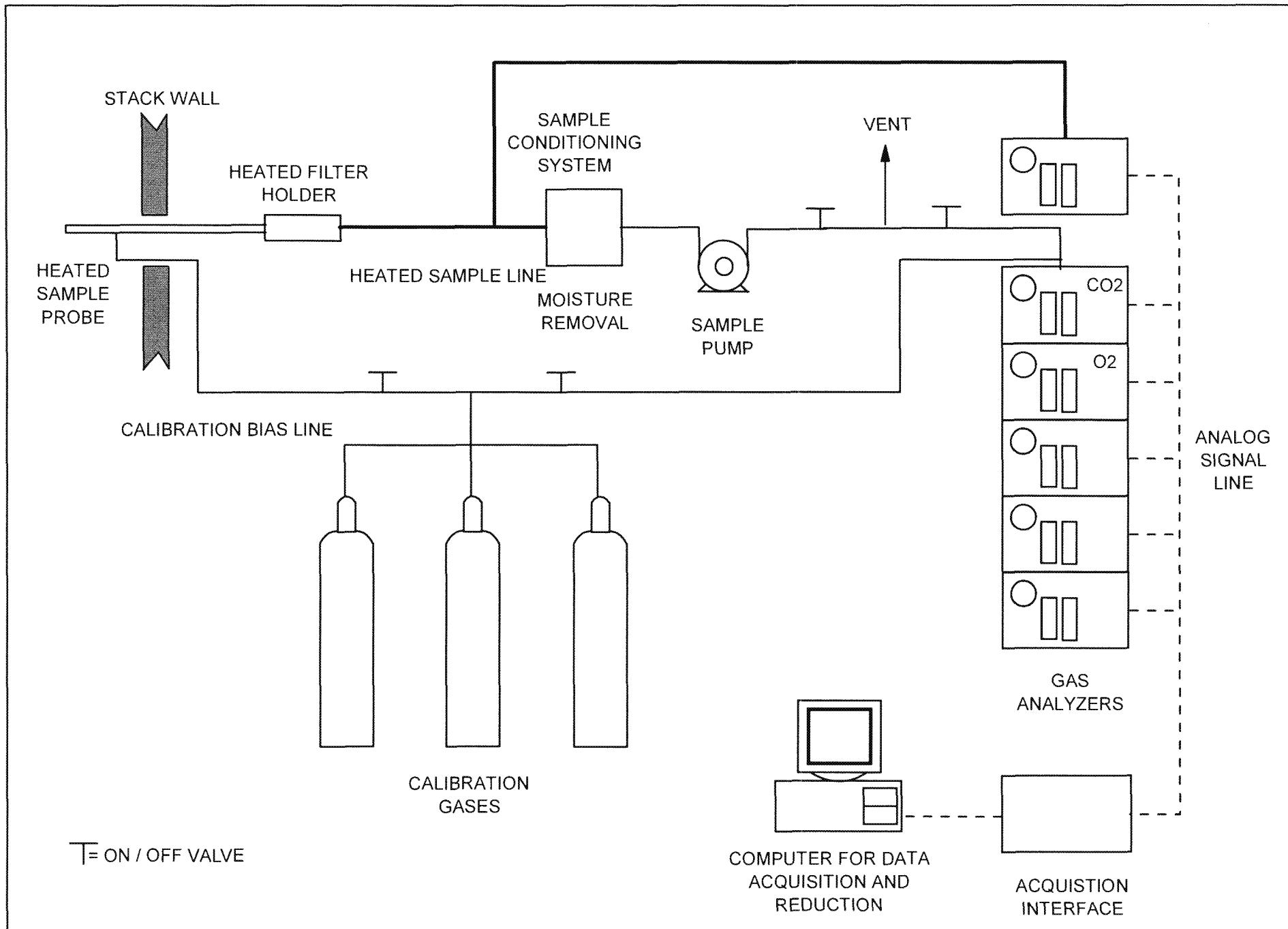


FIGURE 5-3
WESTON SAMPLING SYSTEM

IASDATA\CHEMOURS\15418.002.002\FIGURE 5-3 WESTON SAMPLING SYSTEM

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6. DETAILED TEST RESULTS AND DISCUSSION

Preliminary testing and the associated analytical results required significant sample dilution to bring the HFPO Dimer Acid concentration within instrument calibration, therefore, sample times and sample volumes were reduced for the formal test program. This was approved by the North Carolina Department of Environmental Quality (NCDEQ).

Each test was a minimum of 96 minutes in duration. A total of three test runs were performed on the VE South stack and four tests (two per process condition) were performed on the PPA stack.

Tables 6-1, 6-2 and 6-3 provide detailed test data and test results for the PPA and VE South stack, respectively.

The Method 3A sampling on all sources indicated that the O₂ and CO₂ concentrations were at ambient air levels (20.9% O₂, 0% CO₂), therefore, 20.9% O₂ and 0% CO₂ values were used in all calculations.

For the four tests performed on the PPA stack, two were performed during the Vaporization portion of the process and two during Hydrolysis.

The initial test run one on the VE South stack failed the final leak test; however, the samples were recovered, analyzed and reported. For test run one on the VE South stack, the process went down with eight minutes left in the test. The test continued to its endpoint.

TABLE 6-1
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

Test Data

	Vaporization	Vaporization
	1 PPA	2 PPA
Process Mode		
Run number		
Location		
Date	3/1/2018	3/1/2018
Time period	1158-1353	1422-1618

SAMPLING DATA:

Sampling duration, min.	96.0	96.0
Nozzle diameter, in.	0.189	0.189
Cross sectional nozzle area, sq.ft.	0.000195	0.000195
Barometric pressure, in. Hg	29.84	29.66
Avg. orifice press. diff., in H ₂ O	0.83	0.86
Avg. dry gas meter temp., deg F	76.5	79.5
Avg. abs. dry gas meter temp., deg. R	537	540
Total liquid collected by train, ml	34.3	17.4
Std. vol. of H ₂ O vapor coll., cu.ft.	1.6	0.8
Dry gas meter calibration factor	0.9916	0.9916
Sample vol. at meter cond., dcf	46.050	47.520
Sample vol. at std. cond., dscf ⁽¹⁾	44.893	45.791
Percent of isokinetic sampling	102.3	101.1

GAS STREAM COMPOSITION DATA:

CO ₂ , % by volume, dry basis	0.0	0.0
O ₂ , % by volume, dry basis	20.9	20.9
N ₂ , % by volume, dry basis	79.1	79.1
Molecular wt. of dry gas, lb/lb mole	28.84	28.84
H ₂ O vapor in gas stream, prop. by vol.	0.035	0.018
Mole fraction of dry gas	0.965	0.982
Molecular wt. of wet gas, lb/lb mole	28.46	28.65

GAS STREAM VELOCITY AND VOLUMETRIC FLOW DATA:

Static pressure, in. H ₂ O	-2.80	-2.80
Absolute pressure, in. Hg	29.63	29.45
Avg. temperature, deg. F	79	81
Avg. absolute temperature, deg.R	539	541
Pitot tube coefficient	0.84	0.84
Total number of traverse points	24	24
Avg. gas stream velocity, ft/sec.	41.8	42.8
Stack/duct cross sectional area, sq.ft.	4.90	4.90
Avg. gas stream volumetric flow, wacf/min.	12289	12587
Avg. gas stream volumetric flow, dscf/min.	11499	11873

⁽¹⁾ Standard conditions = 68 deg. F. (20 deg. C.) and 29.92 in Hg (760 mm Hg)

TABLE 6-1(cont.)
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

TEST DATA

Process Mode	Vaporization	Vaporization
Run number	1	2
Location	PPA	PPA
Date	3/1/2018	3/1/2018
Time period	1158-1353	1422-1618

LABORATORY REPORT DATA, ug.

HFPO Dimer Acid	823.127	545.9
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EMISSION RESULTS, ug/dscm.

HFPO Dimer Acid	647.4	420.9
-----------------	-------	-------

EMISSION RESULTS, lb/dscf.

HFPO Dimer Acid	4.04E-08	2.63E-08
-----------------	----------	----------

EMISSION RESULTS, lb/hr.

HFPO Dimer Acid	2.79E-02	1.87E-02
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EMISSION RESULTS, g/sec.

HFPO Dimer Acid	3.51E-03	2.36E-03
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TABLE 6-2
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

Test Data

	Hydrolysis 1	Hydrolysis 2
Process Mode	PPA	PPA
Run number	3/1/2018	3/2/2018
Location		
Date	0920-1114	0815-1011
Time period		

SAMPLING DATA:

Sampling duration, min.	96.0	96.0
Nozzle diameter, in.	0.189	0.189
Cross sectional nozzle area, sq.ft.	0.000195	0.000195
Barometric pressure, in. Hg	29.84	29.89
Avg. orifice press. diff., in H ₂ O	0.86	0.87
Avg. dry gas meter temp., deg F	65.9	53.5
Avg. abs. dry gas meter temp., deg. R	526	513
Total liquid collected by train, ml	24.4	32.3
Std. vol. of H ₂ O vapor coll., cu.ft.	1.1	1.5
Dry gas meter calibration factor	0.9916	0.9916
Sample vol. at meter cond., dcf	46.050	45.605
Sample vol. at std. cond., dscf ⁽¹⁾	45.801	46.537
Percent of isokinetic sampling	101.1	101.4

GAS STREAM COMPOSITION DATA:

CO ₂ , % by volume, dry basis	0.0	0.0
O ₂ , % by volume, dry basis	20.9	20.9
N ₂ , % by volume, dry basis	79.1	79.1
Molecular wt. of dry gas, lb/lb mole	28.84	28.84
H ₂ O vapor in gas stream, prop. by vol.	0.024	0.032
Mole fraction of dry gas	0.976	0.968
Molecular wt. of wet gas, lb/lb mole	28.57	28.49

GAS STREAM VELOCITY AND VOLUMETRIC FLOW DATA:

Static pressure, in. H ₂ O	-2.80	-2.80
Absolute pressure, in. Hg	29.63	29.68
Avg. temperature, deg. F	78	71
Avg. absolute temperature, deg.R	538	531
Pitot tube coefficient	0.84	0.84
Total number of traverse points	24	24
Avg. gas stream velocity, ft/sec.	42.6	42.8
Stack/duct cross sectional area, sq.ft.	4.90	4.90
Avg. gas stream volumetric flow, wacf/min.	12516	12593
Avg. gas stream volumetric flow, dscf/min.	11872	12024

⁽¹⁾ Standard conditions = 68 deg. F. (20 deg. C.) and 29.92 in Hg (760 mm Hg)

TABLE 6-2(cont.)
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

TEST DATA

Process Mode	Hydrolysis	Hydrolysis
Run number	1	2
Location	PPA	PPA
Date	3/1/2018	3/2/2018
Time period	0920-1114	0815-1011

LABORATORY REPORT DATA, ug.

HFPO Dimer Acid	38316.118	53757.399
-----------------	-----------	-----------

EMISSION RESULTS, ug/dscm.

HFPO Dimer Acid	29537.4	40785.3
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EMISSION RESULTS, lb/dscf.

HFPO Dimer Acid	1.84E-06	2.55E-06
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EMISSION RESULTS, lb/hr.

HFPO Dimer Acid	1.31E+00	1.84E+00
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EMISSION RESULTS, g/sec.

HFPO Dimer Acid	1.65E-01	2.31E-01
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TABLE 6-3
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

Test Data

	1 ⁽¹⁾	2	1 Aborted Test ⁽²⁾
Run number			
Location	VE South	VE South	VE South
Date	2/27/2018	2/27/2018	2/26/2018
Time period	1018-1208	1446-1630	1552-1735

SAMPLING DATA:

Sampling duration, min.	96.0	96.0	96.0
Nozzle diameter, in.	0.300	0.300	0.300
Cross sectional nozzle area, sq.ft.	0.000491	0.000491	0.000491
Barometric pressure, in. Hg	30.38	30.34	30.10
Avg. orifice press. diff., in H ₂ O	1.81	1.64	1.76
Avg. dry gas meter temp., deg F	60.8	66.0	69.3
Avg. abs. dry gas meter temp., deg. R	521	526	529
Total liquid collected by train, ml	29.9	34.6	33.0
Std. vol. of H ₂ O vapor coll., cu.ft.	1.4	1.6	1.6
Dry gas meter calibration factor	0.9934	0.9934	0.9934
Sample vol. at meter cond., dcf	70.630	67.794	68.938
Sample vol. at std. cond., dscf ⁽³⁾	72.511	68.796	68.995
Percent of isokinetic sampling	103.7	105.3	103.0

GAS STREAM COMPOSITION DATA:

CO ₂ , % by volume, dry basis	0.0	0.0	0.0
O ₂ , % by volume, dry basis	20.9	20.9	20.9
N ₂ , % by volume, dry basis	79.1	79.1	79.1
Molecular wt. of dry gas, lb/lb mole	28.84	28.84	28.84
H ₂ O vapor in gas stream, prop. by vol.	0.019	0.023	0.022
Mole fraction of dry gas	0.981	0.977	0.978
Molecular wt. of wet gas, lb/lb mole	28.63	28.58	28.60

GAS STREAM VELOCITY AND VOLUMETRIC FLOW DATA:

Static pressure, in. H ₂ O	-0.75	-0.75	-0.75
Absolute pressure, in. Hg	30.32	30.28	30.04
Avg. temperature, deg. F	62	66	71
Avg. absolute temperature, deg.R	522	526	531
Pitot tube coefficient	0.84	0.84	0.84
Total number of traverse points	24	24	12
Avg. gas stream velocity, ft./sec.	24.6	23.3	24.3
Stack/duct cross sectional area, sq.ft.	9.62	9.62	9.62
Avg. gas stream volumetric flow, wacf/min.	14207	13440	14006
Avg. gas stream volumetric flow, dscf/min.	14275	13339	13674

⁽¹⁾Unit was down for approximately the last 8 minutes of the test

⁽²⁾Failed post test leak check

⁽³⁾Standard conditions = 68 deg. F. (20 deg. C.) and 29.92 in Hg (760 mm Hg)

TABLE 6-3(cont.)
CHEMOURS - FAYETTEVILLE, NC
SUMMARY OF HFPO DIMER ACID TEST DATA AND TEST RESULTS

TEST DATA

Run number	1 ⁽¹⁾	2	1 Aborted Test ⁽²⁾
Location	VE South	VE South	VE South
Date	2/27/2018	2/27/2018	2/26/2018
Time period	1018-1208	1446-1630	1552-1735

LABORATORY REPORT DATA, ug.

HFPO Dimer Acid	15.1383	57.8013	50.1664
-----------------	---------	---------	---------

EMISSION RESULTS, ug/dscm.

HFPO Dimer Acid	7.4	29.7	25.7
-----------------	-----	------	------

EMISSION RESULTS, lb/dscf.

HFPO Dimer Acid	4.60E-10	1.85E-09	1.60E-09
-----------------	----------	----------	----------

EMISSION RESULTS, lb/hr.

HFPO Dimer Acid	3.94E-04	1.48E-03	1.32E-03
-----------------	----------	----------	----------

EMISSION RESULTS, g/sec.

HFPO Dimer Acid	4.96E-05	1.87E-04	1.66E-04
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⁽¹⁾ Unit was down for approximately the last 8 minutes of the test

⁽²⁾ Results are approximate due to failed post test leak check

APPENDIX A
PROCESS OPERATIONS DATA

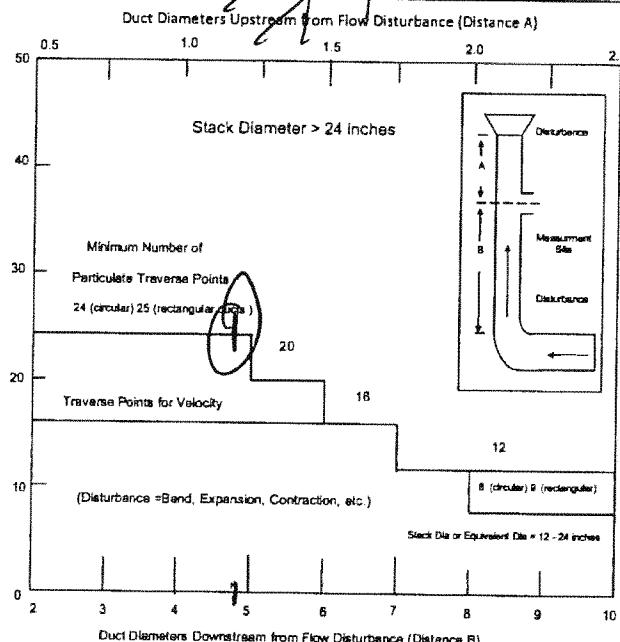
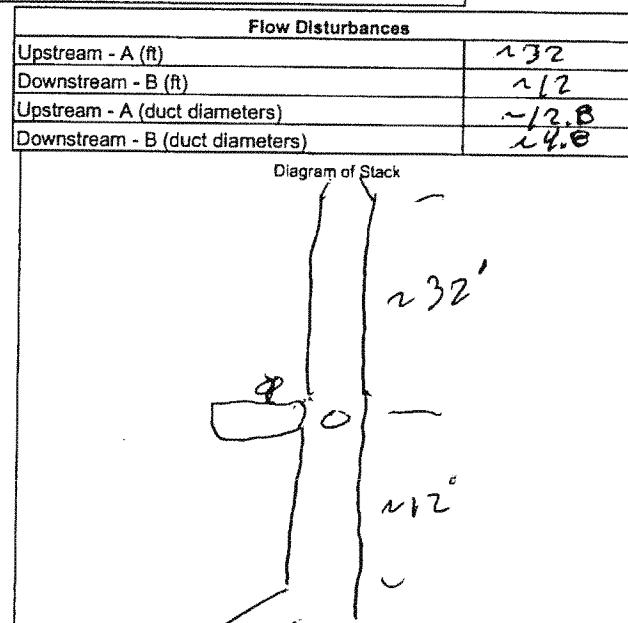
APPENDIX B
RAW AND REDUCED TEST DATA

Sample and Velocity Traverse Point Data Sheet - Method 1

Client	<i>Clemmons</i>		Operator	<i>Paul</i>	
Location/Plant	<i>Fayetteville NC</i>		Date	<i>11/18/08</i>	
Source	<i>Pit Stack</i>		W.O. Number	<i>11018.002208</i>	
Duct Type	<input checked="" type="checkbox"/> Circular	<input type="checkbox"/> Rectangular Duct	Indicate appropriate type		
Traverse Type	<input checked="" type="checkbox"/> Particulate Traverse	<input checked="" type="checkbox"/> Velocity Traverse	<input type="checkbox"/> CEM Traverse		
Distance from far wall to outside of port (in.) = C	45		Upstream - A (ft)	~32	
Port Depth (in.) = D	15		Downstream - B (ft)	~12	
Depth of Duct, diameter (in.) = C-D	30		Upstream - A (duct diameters)	~12.8	
Area of Duct (ft ²)	4.90		Downstream - B (duct diameters)	~4.8	
Total Traverse Points	24				
Total Traverse Points per Port	12				
Port Diameter (in.) —(Flange-Threaded-Hole)	4"				
Monorail Length	—				
Rectangular Ducts Only					
Width of Duct, rectangular duct only (in.)	<i>10.5</i>				
Total Ports (rectangular duct only)	<i>12</i>				
Equivalent Diameter = $(2^*L^4W)/(L+W)$	<i>10.5</i>				
Traverse Point Locations					
Traverse Point	% of Duct	Distance from Inside Duct Wall (in)	Distance from Outside of Port (in)		
1	2.1	6.3	16		
2	6.7	24	17		
3	10.8	3.5	18 1/2		
4	17.7	5.3	20 3/8		
5	25	7.5	22 1/2		
6	35.6	10.7	25 3/8		
7	44.4	13.3	34 3/8		
8	53.3	22.5	37 1/2		
9	62.2	24.7	39 3/4		
10	70.2	26.5	46 1/2		
11	78.3	28.0	47		
12	87.2	28.4	44		
CEM 3 Point(Long Measurement Line) Stratification Point Locations					
1	0.167				
2	0.50				
3	0.833				

Note: If stack dia < 12 inch use EPA Method 1A
(Sample port upstream of pitot port)

Note: If stack dia >24" then adjust traverse point to 1 inch from wall
If stack dia <24" then adjust traverse point to 0.5 inch from wall



Duct Diameters Downstream from Flow Disturbance (Distance B)

Traverse Point Location Percent of Stack -Circular												
Number of Traverse Points												
T	1	2	3	4	5	6	7	8	9	10	11	12
r	14.6	6.7	4.4	3.2	2.6	2.1						
a	85.4	25	14.6	10.5	8.2	6.7						
v		75	29.6	19.4	14.6	11.8						
e		93.3	70.4	32.3	22.6	17.7						
r		85.4	67.7	34.2	25							
s		95.6	80.6	65.8	35.6							
t			89.5	77.4	64.4							
p				96.8	85.4	75						
o					91.8	82.3						
n						97.4	88.2					
i							93.3					
n								97.9				

Traverse Point Location Percent of Stack -Rectangular												
Number of Traverse Points												
T	1	2	3	4	5	6	7	8	9	10	11	12
r	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2	
a	15.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5	
v		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8	
e			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2	
r				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5	
s					91.7	78.6	68.8	61.1	55.0	50.0	45.8	
t						97.0	81.3	72.2	65.0	59.1	54.2	
p							93.6	83.3	75.0	68.2	62.5	
o								94.4	85.0	77.3	70.8	
n									95.0	86.4	79.2	
i										95.5	87.5	
n											95.8	

Determination of Stack Gas Velocity - Method 2

Client	Chenow	Operator	KC/MW	Pitot Coeff (Cp)	0.54	- 8
Location/Plant	Fayetteville	Date	1/08/2018	Stack Area, ft ² (As)	4.90	
Source	PPA	W.O. Number	18408502000	Pitot Tube/Thermo ID	1696	

Run Number	Pre 1			
Time	1727 - 1740			
Barometric Press, In Hg (Pb)				
Static Press, In H ₂ O (Pstatic)				
Source Moisture, % (BWS)				
O ₂ , %				
CO ₂ , %				

Cyclonic Flow Determination		Traverse Location		Leak Check good ? Y / N		Leak Check good ? Y / N		Leak Check good ? Y / N									
Delta P at 0°	Angle yielding zero Delta P	Port	Point	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)								
0.07	5	A	1	0.14	65												
0.07	5		2	0.14	65												
0.08	5		3	0.44	67												
0.08	5		4	0.49	68												
0.07	5		5	0.54	69												
0.08	5		6	0.70	70												
0.08	5		7	0.73	70												
0.10	5		8	0.76	70												
0.08	5		9	0.76	71												
0.09	5		10	0.76	71												
0.08	5		11	0.77	71												
0.08	5		12	0.72	71												
<hr/>		<hr/>		<hr/>		<hr/>		<hr/>									
0	5	B	1	0.17	67												
0	5		2	0.17	67												
0	0		3	0.17	67												
0	0		4	0.38	68												
0	0		5	0.51	68												
0	0		6	0.59	69												
0	0		7	0.73	69												
0	0		8	0.79	68												
0	0		9	0.78	70												
0.08	5		10	0.77	70												
0.07	5		11	0.77	70												
0.07	5		12	0.74	70												
Avg Angle		Avg Delta P & Temp		0.5633 69													
<hr/>																	
avg √DeltaP																	
Average gas stream velocity, ft/sec.																	
Vol. flow rate @ actual conditions, wacf/min																	
Vol. flow rate at standard conditions, dscf/min																	

$$MWd = (0.32 \cdot O_2) + (0.44 \cdot CO_2) + (0.28 \cdot (100 - (CO_2 + O_2)))$$

$$MWs = (MWd \cdot (1 - (BWS/100))) + (18 \cdot (BWS/100))$$

$$Tsa = Ts + 460$$

$$Ps = Pb + (Pstatic/13.6)$$

$$Vs = 85.49 \cdot Cp \cdot \text{avg } \sqrt{\Delta P} = \sqrt{Tsa/(Ps \cdot MWs)}$$

$$Qs(\text{act}) = 60 \cdot Vs \cdot As$$

$$Qs(\text{std}) = 17.64 \cdot (1 - (BWS/100)) \cdot (Ps/Tsa) \cdot Qs(\text{act})$$

where:

MWd = Dry molecular weight source gas, lb/lb-mole.

MWs = Wet molecular weight source gas, lb/lb-mole.

Tsa = Source Temperature, absolute(OR)

Ps = Absolute stack static pressure, inches Hg.

Vs = Average gas stream velocity, ft/sec.

Qs(act) = Volumetric flow rate of wet stack gas at actual, wacf/min

Qs(std) = Volumetric flow rate of dry stack gas at standard conditions, dscf/min

Comments
method2.xls



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CHEMOURS - FAYETTEVILLE, NC
INPUTS FOR HFPO DIMER ACID CALCULATIONS

Test Data

Run number	1	2
Location	PPA	PPA
Date	3/1/2018	3/1/2018
Time period	1158-1353	1422-1618
Operator	MW	MW

Inputs For Cales.

Sq. rt. delta P	0.72793	0.74444
Delta H	0.8317	0.8583
Stack temp. (deg.F)	79.3	81.1
Meter temp. (deg.F)	76.5	79.5
Sample volume (act.)	46.050	47.520
Barometric press. (in.Hg)	29.84	29.66
Volume H ₂ O imp. (ml)	20.0	4.0
Weight change sil. gel (g)	14.3	13.4
% CO ₂	0.0	0.0
% O ₂	20.9	20.9
% N ₂	79.1	79.1
Area of stack (sq.ft.)	4.900	4.900
Sample time (min.)	96.0	96.0
Static pressure (in.H ₂ O)	-2.80	-2.80
Nozzle dia. (in.)	0.189	0.189
Meter box cal.	0.9916	0.9916
Cp of pitot tube	0.84	0.84
Traverse points	24	24

RUN 1								
Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out
C	1	0.73	0.85	1.10	1.05	537.820	78	72
	2	0.73	0.85	1.10	1.05	561.000	78	72
	3	0.75	0.87	1.14	1.07	561.180	78	72
	4	0.73	0.85	1.10	1.05	584.050	78	72
	5	0.70	0.84	1.06	1.03		79	72
	6	0.68	0.82	1.03	1.01		79	72
D	1	0.58	0.76	0.88	0.94		79	74
	2	0.47	0.69	0.71	0.84		79	76
	3	0.39	0.62	0.59	0.77		79	77
	4	0.31	0.56	0.47	0.69		78	77
	5	0.28	0.53	0.43	0.66		78	77
	6	0.26	0.51	0.40	0.63		78	77
A	1	0.75	0.87	1.14	1.07		79	77
	2	0.75	0.87	1.14	1.07		79	77
	3	0.73	0.85	1.10	1.05		79	78
	4	0.73	0.85	1.10	1.05		80	78
	5	0.73	0.85	1.10	1.05		80	78
	6	0.70	0.84	1.06	1.03		80	79
B	1	0.60	0.77	0.91	0.95		80	79
	2	0.46	0.68	0.69	0.83		81	80
	3	0.36	0.60	0.54	0.73		81	80
	4	0.30	0.55	0.45	0.67		81	80
	5	0.24	0.49	0.36	0.60		81	80
	6	0.24	0.49	0.36	0.60		81	80
AVG		0.55000	0.72793	0.83167	0.89512	46.050	79.29	76.50

RUN 2

Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out
C	1	0.73	0.85	1.10	1.05	584.271	80	78
	2	0.73	0.85	1.10	1.05	608.100	80	78
	3	0.75	0.87	1.14	1.07	608.199	80	78
	4	0.73	0.85	1.10	1.05	631.890	81	78
	5	0.70	0.84	1.06	1.03		81	78
	6	0.65	0.81	0.98	0.99		81	79
D	1	0.55	0.74	0.83	0.91		81	79
	2	0.55	0.74	0.83	0.91		82	79
	3	0.45	0.67	0.68	0.82		81	79
	4	0.39	0.62	0.59	0.77		82	81
	5	0.30	0.55	0.45	0.67		82	81
	6	0.26	0.51	0.39	0.62		82	81
A	1	0.75	0.87	1.14	1.07		81	80
	2	0.73	0.85	1.10	1.05		81	80
	3	0.73	0.85	1.10	1.05		81	80
	4	0.73	0.85	1.10	1.05		81	80
	5	0.69	0.83	1.04	1.02		81	80
	6	0.65	0.81	0.98	0.99		81	80
B	1	0.56	0.75	0.85	0.92		82	81
	2	0.55	0.74	0.83	0.91		82	81
	3	0.46	0.68	0.69	0.83		81	80
	4	0.40	0.63	0.61	0.78		81	80
	5	0.35	0.59	0.53	0.73		81	79
	6	0.25	0.50	0.38	0.62		81	79
AVG		0.56833	0.74444	0.85833	0.91487	47.520	81.1	79.5

ISOKINETIC FIELD DATA SHEET

EPA Method 0010 - Semi-Volatiles

Client	W.O #	Project ID	Mode/Source ID	Stack Conditions			
				Chemours	Assumed	1.5	
	15418-002-0002-0001			% Moisture			
	Chemours			Impinger Vol (ml)			
	PPA			Silica gel (g)			
	STK			CO2 % by Vol	0.1	0.2	
	4			O2 % by Vol	20.2	20.2	
	M0010			Temperature (°F)	77	77	
	26FEB2018			Meier Temp (°F)	26.6	26.6	
	PPA - Stack			Static Press (in H ₂ O)	-2.8	-2.8	
	3.01.1.3			Ambient Temp (°F)	70	70	
	2.9.8.4			VAPORIZATION			
	MR MATS W/ NTC						
	Sample Date						
	Baro Press (in HG)						
	Operator						
TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE Delta P (in H ₂ O)	ORIFICE PRESSURE Delta H (in H ₂ O)	DRY RE S3	DRY RE S4	RE S4
13 1	0	11:52	0.73	1.10	53	54	54
2	8		0.73	1.10			
3	12		0.75	1.14			
4	16		0.73	1.10			
5	20		0.70	1.06			
6	24		0.63	1.03			
7	28		0.58	0.98			
8	32		0.47	0.71			
9	36		0.39	0.51			
10	40		0.31	0.41			
11	44		0.24	0.43			
12	48		0.20	0.40			
		13:05					
14 1	4		0.75	1.14			
2	8		0.75	1.14			
3	12		0.73	1.10			
4	16		0.73	1.10			
5	20		0.73	1.10			
6	24		0.70	1.06			
7	28		0.60	0.91			
8	32		0.46	0.69			
9	36		0.34	0.54			
10	40		0.30	0.45			
11	44		0.24	0.34			
12	48		0.24	0.36			
	Avg Delta P				Avg Delta H		
	0.550000				0.83167		
	Avg Sqrt Delta P				Avg Sqrt Delta H		
	0.72712				0.89512		
					Com		

Meter Box ID	31	Meter Box Y	0, 9916	K Factor	J, S2	Final	0,000
Meter Box Del H	0,297	Sample Train (ft ³)	0,3387	Initial	Mid-Point	0,001	0,001
Probe ID / Length	0,84	Leak Check @ (in HG)	0,7	0,351	0,05	0,05	0,05
Probe Material	0,84	Pitot leak check good	0,7	0,351	0,05	0,05	0,05
Pitot / Thermocouple ID	0,84	Pitot Inspection good	0,7	0,351	0,05	0,05	0,05
Pitot Coefficient	0,84	Method 3 System good	0,7	0,351	0,05	0,05	0,05
Nozzle ID	0,189	Temp Check	0,189	Pre-Test Set	Post-Test Set	0,189	0,189
Nozzle Measurements	0,189	Meter Box Temp	0,189	63	70	63	63
Avg Nozzle Dia (in)	4,92	Reference Temp	4,92	63	70	63	63
Area of Stack (ft ²)	4,92	Pass/Fail (+/- 2°)	4,92	Pass	Fail	Pass	Pass
Sample Time	24	Temp Change Response (°F)	24	0,05	0,05	0,05	0,05
Total Traverse Pts							
DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (°F)	IMPINGEMENT EXIT TEMP (°F)	SAMPLE TRAIN VAC (in. Hg)	XAD EXIT TEMP (F)	Comments	
73	72	101	100	63	58		23,18
78	72	102	100	60	57		
72	72	102	100	59	57		
79	72	100	99	59	47		
79	72	101	100	58	48		
79	74	100	101	57	49		
79	76	100	100	57	50		
79	77	101	99	59	52		
78	77	100	100	60	53		
78	77	101	99	60	49		
78	77	100	99	61	52		
78	77	100	99	61	51		
79	77	100	99	67	53		22,27
79	77	100	99	60	49		
79	78	101	101	56	49		
80	78	100	99	56	49		
80	78	100	99	56	48		
80	79	100	99	57	48		
80	79	100	100	53	49		
81	80	100	103	53	49		
81	80	100	99	57	51		
81	80	100	99	57	51		
81	80	100	99	57	51		
Avg T _{in}	76,5	V	Min/Max	67	Max Vac	Min Max	56
Avg T _s	78,3	V	1/0	67	3	56	

ISOKINETIC FIELD DATA SHEET

EPA Method 0010 - Semi-Volatiles

Client	W.O #	Chemours	Stack Conditions			Meter Box ID	Meter Box Y	Meter Box Del H	Probe ID / Length	Probe Material	Pilot / Thermocouple ID	Nozzle ID	Sample Train (ft ³)	Leak Check @ (in Hg)	Pilot leak check good	Pilot Inspection good	Method 3 System good	Meter Box Temp	Temp Check	Reference Temp	Pass/Fail (+/- 2°)	Temp Change Response	Post-Test Set	Final Mid-Point	K Factor	Page 1 of 1		
	15418-002-0001	Chemours	Assumed	Actual	% Moisture	1.5																						
Project ID		PPA	Impinger Vol (ml)	Silica gel (g)		2.0587	9.2																					
Model/Source ID	Samp. Loc. ID	STK	CO2 % by Vol	O2 % by Vol		0.1	20.2																					
Run No./ID	Test Method ID	M0010	O2 % by Vol	Temperature (°F)	26FEB2018	27.7	-2.8																					
Date ID	Source/Location	PPA, Stack	Meter Temp (°F)	Static Press (in H ₂ O)	31D11/18	29.66	-2.9																					
Sample Date	Baro. Press (in Hg)	PPA, Stack	Ambient Temp (°F)	Avg Nozzle Dia (in)	29.66	29.66	-2.9																					
Operator	Total Traverse Pts	Sample Time	Total Traverse Pts			24																						
			DRY GAS METER READING (ft ³)	ORIFICE PRESSURE Delta H (in H ₂ O)	VELOCITY PRESSURE Delta P (in H ₂ O)	STACK TEMP (°F)	DGM OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER BOX TEMP (°F)	IMPINGER EXIT TEMP (°F)	SAMPLE TRAIN VAC (in Hg)	AD EXIT TEMP (F)	Comments:															
TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)																										
A	1	4	0.73	1.10	587.10	80	78	101	100	2569	3	59																
	2	8	0.73	1.10	588.78	80	78	101	101	604	3	59																
	3	12	0.73	1.14	591.10	80	78	101	101	65	3	45																
	4	16	0.73	1.10	593.42	80	78	100	101	60	3	45																
	5	20	0.73	1.06	595.63	80	78	100	100	54	3	46																
	6	24	0.65	0.92	597.84	81	79	100	100	53	3	41																
	7	28	0.55	0.23	599.76	81	79	100	100	53	3	44																
	8	32	0.55	0.23	601.72	82	79	102	101	52	3	47																
	9	36	0.45	0.68	603.71	81	79	100	100	52	3	47																
	10	40	0.39	0.59	605.08	82	81	99	100	52	3	47																
	11	44	0.33	0.45	606.70	82	81	99	100	52	3	48																
	12	48	1510	0.26	608.100	82	81	101	100	53	3	48																
					1530																							
B	1	4	0.75	1.14	610.27	81	80	101	100	66	3	42																
	2	8	0.73	1.10	612.53	81	80	100	100	64	3	47																
	3	12	0.73	1.18	614.80	81	80	100	100	57	3	48																
	4	16	0.73	1.10	617.06	81	80	99	99	57	3	48																
	5	20	0.69	1.04	619.29	81	80	99	99	56	3	48																
	6	24	0.65	0.98	621.47	81	80	101	101	57	3	49																
	7	28	0.56	0.85	622.41	82	81	99	100	57	3	50																
	8	32	0.35	0.83	625.17	82	81	102	102	52	3	48																
	9	36	0.46	0.69	627.25	82	81	100	100	58	3	49																
	10	40	0.42	0.61	628.92	81	80	100	100	52	3	49																
	11	44	0.35	0.53	630.41	81	79	100	100	59	3	50																
	12	48	1618	0.25	631.89	81	79	100	100	59	3	50																
					Avg Delta P	Avg Sqr Delta P	Avg Sqr Delta P	Avg Sqr Delta P	Avg Sqr Delta P	Min/Max	Max Vac	Min/Max																
					0.24033	0.25833	0.25833	0.25833	0.25833	50	3	50																

Comments: 141102

EPA Method 0010 from EPA SW-846

141102

20
+14.3
34.3

SAMPLE RECOVERY FIELD DATA

EPA Method 0010 - Semi-Volatiles

Client

Chemours

W.O. #

15418.002.002.0001

Location/Plant

Fayetteville, NC

Source & Location

PPA Stack

Run No.

4

Vaporizer

Sample Date

3/1/10

Recovery Date

3/1/10

Sample I.D.

Chemours - PPA - STK - 4 - M0010 -

Analyst

PMA

Filter Number

—

Impinger										
Contents	Empty	HPLC H2O	HPLC H2O					Imp.Total	8	Total
Final	12	87	109	2					314.3	✓
Initial	0	100	100	0					300	✓
Gain	12	-3	9	2				20	14.3	87

Impinger Color

Clear

Labeled?

3/1/10

Silica Gel Condition

Good

Sealed?

3/1/10

Run No.

5

Vaporizer

Sample Date

3/1/10

Recovery Date

3/1/10

Sample I.D.

Chemours - PPA - STK - 5 - M0010 -

Analyst

PMA

Filter Number

—

Impinger										
Contents	Empty	HPLC H2O	HPLC H2O					Imp.Total	8	Total
Final	5	98	99	2					313.4	✓
Initial	0	100	100	0					300	
Gain	5	-2	-1	2				4	13.4	17.4

Impinger Color

clear

Labeled?

3/1/10

Silica Gel Condition

good

Sealed?

3/1/10

Run No.

6

Sample Date

Recovery Date

Sample I.D.

Chemours - PPA - STK - 6 - M0010 -

Analyst

Filter Number

—

Impinger										
Contents	Empty	HPLC H2O	HPLC H2O					Imp.Total	8	Total
Final										
Initial		100	100						300	
Gain										

Impinger Color

Labeled?

Silica Gel Condition

Sealed?

Check COC for Sample IDs of Media Blanks

WESTON
SOLUTIONS

CHEMOURS - FAYETTEVILLE, NC
INPUTS FOR HFPO DIMER ACID CALCULATIONS

Test Data

Run number	1	2
Location	PPA	PPA
Date	3-1-2018	3-2-2018
Time period	0920-1114	0815-1011
Operator	MW	MW

Inputs For Calcs.

Sq. rt. delta P	0.74394	0.75277
Delta H	0.8642	0.8692
Stack temp. (deg.F)	77.6	71.0
Meter temp. (deg.F)	65.9	53.5
Sample volume (act.)	46.050	45.605
Barometric press. (in.Hg)	29.84	29.89
Volume H ₂ O imp. (ml)	11.0	15.0
Weight change sil. gel (g)	13.4	17.3
% CO ₂	0.0	0.0
% O ₂	20.9	20.9
% N ₂	79.1	79.1
Area of stack (sq.ft.)	4.900	4.900
Sample time (min.)	96.0	96.0
Static pressure (in.H ₂ O)	-2.80	-2.80
Nozzle dia. (in.)	0.189	0.189
Meter box cal.	0.9916	0.9916
Cp of pitot tube	0.84	0.84
Traverse points	24	24

RUN 1

Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out
C	1	0.75	0.87	1.14	1.07	490.009	77	62
	2	0.73	0.85	1.10	1.05	513.660	77	62
	3	0.75	0.87	1.14	1.07	514.000	77	62
	4	0.73	0.85	1.10	1.05	536.399	77	63
	5	0.75	0.87	1.14	1.07		77	63
	6	0.70	0.84	1.06	1.03		77	64
D	1	0.65	0.81	0.98	0.99		77	64
	2	0.55	0.74	0.83	0.91		79	64
	3	0.40	0.63	0.60	0.77		78	64
	4	0.35	0.59	0.53	0.73		79	64
	5	0.33	0.57	0.50	0.71		77	66
	6	0.30	0.55	0.46	0.68		76	66
A	1	0.73	0.85	1.10	1.05		77	66
	2	0.73	0.85	1.10	1.05		78	67
	3	0.72	0.85	1.09	1.04		78	67
	4	0.73	0.85	1.10	1.05		78	67
	5	0.72	0.85	1.09	1.04		78	67
	6	0.70	0.84	1.06	1.03		78	69
B	1	0.65	0.81	0.98	0.99		78	69
	2	0.55	0.74	0.83	0.91		78	69
	3	0.39	0.62	0.59	0.77		78	69
	4	0.30	0.55	0.46	0.68		78	69
	5	0.25	0.50	0.38	0.62		78	69
	6	0.25	0.50	0.38	0.62		78	70
AVG		0.57125	0.74394	0.86417	0.91515	46.050	77.63	65.92

RUN 2								23.18	
Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out	23.28
C	1	0.75	0.87	1.14	1.07	641.225	72	52	
	2	0.75	0.87	1.14	1.07	664.410	72	52	
	3	0.75	0.87	1.14	1.07	664.501	72	53	
	4	0.75	0.87	1.14	1.07	686.921	71	52	
	5	0.75	0.87	1.14	1.07		71	53	
	6	0.72	0.85	1.09	1.04		71	53	
D	1	0.63	0.79	0.95	0.97		72	53	
	2	0.55	0.74	0.83	0.91		73	54	
	3	0.45	0.67	0.68	0.82		72	54	
	4	0.40	0.63	0.60	0.77		72	54	
	5	0.32	0.57	0.48	0.69		72	54	
	6	0.25	0.50	0.38	0.62		71	54	
A	1	0.73	0.85	1.10	1.05		71	54	
	2	0.75	0.87	1.10	1.05		71	54	
	3	0.75	0.87	1.10	1.05		71	54	
	4	0.73	0.85	1.07	1.03		70	54	
	5	0.73	0.85	1.07	1.03		70	54	
	6	0.65	0.81	0.95	0.97		71	54	
B	1	0.65	0.81	0.95	0.97		71	54	
	2	0.56	0.75	0.82	0.91		71	54	
	3	0.44	0.66	0.64	0.80		71	54	
	4	0.38	0.62	0.55	0.74		70	53	
	5	0.30	0.55	0.44	0.66		69	53	
	6	0.25	0.50	0.36	0.60		68	53	
AVG		0.58292	0.75277	0.86917	0.91883	45.605	71.0	53.5	

ISOKINETIC FIELD DATA SHEET

Kun 2 Hydrolysis

三

ISOKINETIC FIELD DATA SHEET

EPA Method 0010 - Semi-Volatiles

Client	Chemours	Stack Conditions			Meter Box ID	Meter Box Y	Meter Box Del H	Final
W.O #	15418-002-0001	Assumed	Actual		0.9916	0.9916	0.9916	0.9916
Project ID	Chemours	% Moisture	Impinger Vol (ml)		0.527	0.527	0.527	0.527
Model/Source ID	PPA	Silica gel (g)	Probe ID / Length		0.563	0.563	0.563	0.563
Samp. Loc. ID	STK	CO2, % by Vol	Probe Material		0.563	0.563	0.563	0.563
Run No. ID	2	O2, % by Vol	Pilot Thermocouple ID		0.563	0.563	0.563	0.563
Test Method ID	M0010	O2, % by Vol	Pilot Coefficient		0.84	0.84	0.84	0.84
Date ID	26FEB2018	Temperature (°F)	Nozzle ID		W189	W189	W189	W189
Source/Location	PPA Stack	Meter Temp (°F)	Nozzle Measurements		0.129	0.129	0.129	0.129
Sample Date	3/01/18	Static Press (in H ₂ O)	Avg Nozzle Dia (in)		0.133	0.133	0.133	0.133
Baro. Press (in Hg)	29.84	Temp Change Response (°F)	Area of Stack (ft ²)		4.93	4.93	4.93	4.93
Operator	<u>CD</u> MATT WILCOX	Commitment Temp (°F)	Total Traverse Pts		24	24	24	24
			Sample Time					
			Total Traverse Pts					
A	1	4	0.75	0.74	7.1	7.2	7.2	7.2
	2	2	0.75	0.74	6.45	6.3	6.3	6.3
	3	12	0.73	0.71	6.47	6.3	6.3	6.3
	4	14	0.75	0.71	6.50	6.3	6.3	6.3
	5	10	0.75	1.14	6.52	3.2	7.1	7.1
	6	21	0.72	1.03	6.51	4.6	7.1	7.1
	7	26	0.63	0.93	6.36	4.6	7.2	7.2
	8	32	0.55	0.83	6.38	3.6	7.3	7.3
	9	36	0.45	0.68	6.62	0.5	7.3	7.3
	10	42	0.40	0.60	6.62	6.0	7.2	7.2
	11	47	0.32	0.48	6.63	0.9	7.2	7.2
	12	48	0.25	0.37	6.64	4.10	7.1	7.1
	13	49	0.23	0.37	6.64	5.01	7.1	7.1
	14		0.73	1.10	6.66	6.2	7.1	7.1
	15	8	0.73	1.10	6.63	2.5	7.1	7.1
	16	13	0.75	1.10	6.73	0.95	7.1	7.1
	17	16	0.73	1.07	6.73	1.0	7.5	7.5
	18	20	0.63	1.07	6.75	1.5	7.0	7.0
	19	24	0.65	0.95	6.77	2.1	7.1	7.1
	20	28	0.65	0.95	6.74	3.1	7.1	7.1
	21	32	0.56	0.82	6.31	1.9	7.1	7.1
	22	36	0.41	0.67	6.22	3.3	7.1	7.1
	23	40	0.38	0.55	6.84	3.3	7.0	7.0
	24	44	0.30	0.47	6.85	6.1	7.0	7.0
	25	48	0.11	0.25	6.86	9.21	6.8	6.8
	26		0.58	0.36	6.86	9.21	6.8	6.8
	27		0.58	0.37	6.86	9.17	6.8	6.8
	28		0.58	0.37	6.86	9.17	6.8	6.8
	29		0.58	0.37	6.86	9.17	6.8	6.8
	30		0.58	0.37	6.86	9.17	6.8	6.8
	31		0.58	0.37	6.86	9.17	6.8	6.8
	32		0.58	0.37	6.86	9.17	6.8	6.8
	33		0.58	0.37	6.86	9.17	6.8	6.8
	34		0.58	0.37	6.86	9.17	6.8	6.8
	35		0.58	0.37	6.86	9.17	6.8	6.8
	36		0.58	0.37	6.86	9.17	6.8	6.8
	37		0.58	0.37	6.86	9.17	6.8	6.8
	38		0.58	0.37	6.86	9.17	6.8	6.8
	39		0.58	0.37	6.86	9.17	6.8	6.8
	40		0.58	0.37	6.86	9.17	6.8	6.8

EPA Method 0010 from EPA SW-846

EPA Method 0010 from EPA SW-846

45/104 45/103 3/01/18

WESTON
Solutions

SAMPLE RECOVERY FIELD DATA

EPA Method 0010 - Semi-Volatiles

Client

Chemours

W.O. #

15418.002.002.0001

Location/Plant

Fayetteville, NC

Source & Location

PPA Stack

Run No.

1

Hydrolysis

Sample Date

3/1/08

Recovery Date

3/1/08

Sample I.D.

Chemours - PPA - STK - 1 - M0010 -

Analyst

PMM

Filter Number

—

Impinger													
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O	1	2	3	4	5	6	7	Imp.Total	8	Total
Final	3	104	100	2							217.4		
Initial	0	100	100	0							300		
Gain	3	0	—	2							11	13.4	24.4

Impinger Color Clear Labeled?

Silica Gel Condition Closed Sealed?

Run No.

2

Sample Date

3/2/08

Recovery Date

3/2/08

Sample I.D.

Chemours - PPA - STK - 2 - M0010 -

Analyst

PMM

Filter Number

—

Impinger													
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O	1	2	3	4	5	6	7	Imp.Total	8	Total
Final	2	102	78	2							317.3		
Initial	0	100	100	0							300		
Gain	2	12	-2	3							1.5	17.3	32.3

Impinger Color Clear Labeled?

Silica Gel Condition Closed Sealed?

Run No.

3

Sample Date

Recovery Date

Sample I.D.

Chemours - PPA - STK - 3 - M0010 -

Analyst

Filter Number

Impinger													
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O	1	2	3	4	5	6	7	Imp.Total	8	Total
Final													
Initial		100	100								300		
Gain													

Impinger Color _____ Labeled? _____

Silica Gel Condition _____ Sealed? _____

Check COC for Sample IDs of Media Blanks

WESTON
SOLUTIONS

Sample and Velocity Traverse Point Data Sheet - Method 1

Client ChemoursLocation/Plant Fayetteville, NCSource VIE SulfurOperator TomDate 1/26/18W.O. Number 15418, JVZ, 001Duct Type Circular Rectangular DuctTraverse Type Particulate Traverse Velocity Traverse CEM Traverse

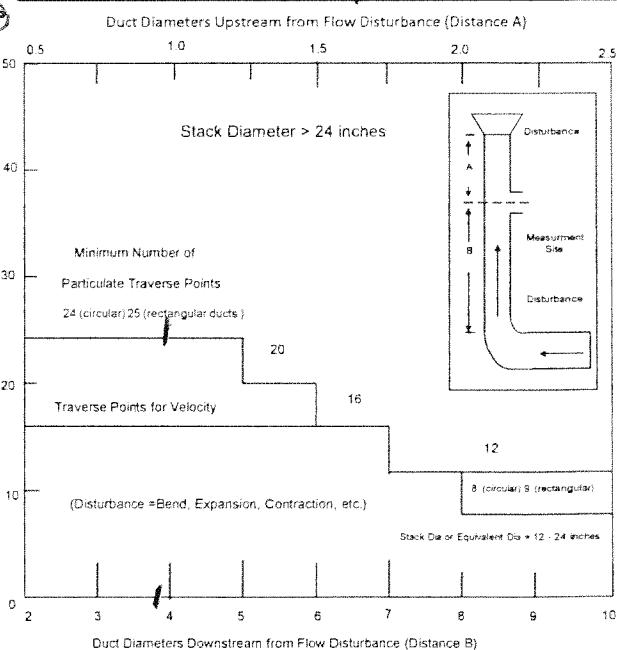
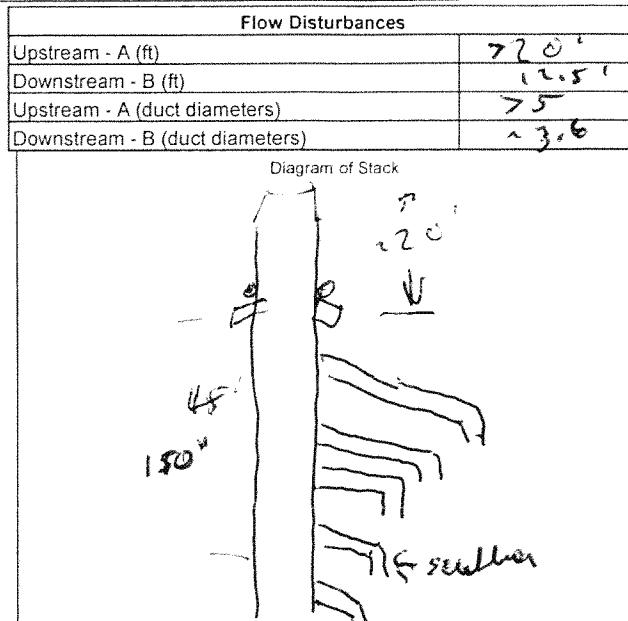
Distance from far wall to outside of port (in.) = C		<u>61</u>	
Port Depth (in.) = D		<u>19 1/2</u>	
Depth of Duct, diameter (in.) = C-D		<u>4 1/2</u>	
Area of Duct (ft ²)		<u>9.62</u>	
Total Traverse Points		<u>24</u>	
Total Traverse Points per Port		<u>12</u>	
Port Diameter (in.) ---(Flange-Threaded-Hole)		<u>47 1/2</u>	
Monorail Length			
Rectangular Ducts Only			
Width of Duct, rectangular duct only (in.)			
Total Ports (rectangular duct only)			
Equivalent Diameter = $(2 \cdot L \cdot W) / (L + W)$			
Traverse Point Locations			
Traverse Point	% of Duct	Distance from Inside Duct Wall (in)	Distance from Outside of Port (in)
1	2.1	0.88	19.9 20.0
2	6.7	2.81	21.0
3	11.8	4.96	23.9 3 1/2
4	17.7	7.4	26.1
5	25.0	10.5	29 1/2
6	35.6	14.95	33.3 34.34
7	44.4	27.0	46.0
8	75	31.5	50.5
9	82.3	34.57	53.98
10	88.2	37.0	56.0
11	93.3	39.2	58.18
12	97.9	41.1	60.8
CEM 3 Point(Long Measurement Line) Stratification Point Locations			
1	0.167		
2	0.50		
3	0.833		

Note: If stack dia < 12 inch use EPA Method 1A

(Sample port upstream of pilot port)

Note: If stack dia >24" then adjust traverse point to 1 inch from wall

If stack dia <24" then adjust traverse point to 0.5 inch from wall



Duct Diameters Downstream from Flow Disturbance (Distance B)

Traverse Point Location Percent of Stack - Circular												
Number of Traverse Points												
T	1	14.6	6.7	4.4	3.2	2.6	2.1					
T	2	85.4	25	14.6	10.5	8.2	6.7					
L	3		75	29.6	19.4	14.6	11.8					
E	4		93.3	70.4	32.3	22.6	17.7					
R	5			83.4	67.7	34.2	23					
S	6				95.6	80.6	65.8	35.6				
E	7					89.5	77.4	64.4				
P	8						96.8	85.4	75			
O	9							91.8	82.3			
I	10								97.4	88.2		
N	11									93.3		
T	12										97.9	

Traverse Point Location Percent of Stack - Rectangular												
Number of Traverse Points												
T	1	25.0	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
T	2	75.0	50.0	37.5	30.0	25.0	21.4	18.8	16.7	15.0	13.6	12.5
L	3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
E	4			87.5	70.0	58.3	50.0	43.8	38.9	35.0	31.8	29.2
R	5				90.0	75.0	64.3	56.3	50.0	45.0	40.9	37.5
S	6					91.7	78.6	68.8	61.1	55.0	50.0	45.8
E	7						92.9	81.3	72.2	65.0	59.1	54.2
P	8							93.8	83.3	75.0	68.2	62.5
O	9								94.4	85.0	77.3	70.8
I	10									95.0	86.4	79.2
N	11										95.5	87.5
T	12											95.8

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Determination of Stack Gas Velocity - Method 2

Client	<u>Clemco</u>	Operator	<u>ICS/MW</u>	Pitot Coeff (Cp)	<u>84</u>
Location/Plant	<u>Bryceville, NC</u>	Date	<u>1/10/18</u>	Stack Area, ft ² (As)	<u>9.62</u>
Source	<u>South VE</u>	W.O. Number	<u>15468 002.002</u>	Pitot Tube/Thermo ID	<u>P503</u>

Run Number	1			
Time	<u>~1100</u>			
Barometric Press, in Hg (Pb)	<u>29.44</u>			
Static Press, in H ₂ O (Pstatic)	<u>0.52</u>			
Source Moisture, % (BWS)	<u>2</u>			
O ₂ , %	<u>20.9</u>			
CO ₂ , %	<u>0.1</u>			

Cyclonic Flow Determination		Traverse Location		Leak Check good ? <u>(Y/N)</u>		Leak Check good ? <u>Y/N</u>		Leak Check good ? <u>Y/N</u>			
Delta P at 0°	Angle yielding zero Delta P	Port	Point	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)	Delta P	Source Temp, F° (Ts)		
0	A1	1	1	0.10	70						
0		2	2	0.10	70						
0		3	3	0.11	71						
0			4	0.13	71						
0			5	0.15	72						
0			6	0.16	72						
0			7	0.16	72						
0			8	0.18	73						
0			9	0.16	73						
0			10	0.15	73						
0			11	0.15	74						
0			12	0.15	75						
 B		1	1	0.09	72						
0		2	2	0.10	72						
0		3	3	0.10	72						
0			4	0.13	73						
0			5	0.15	73						
0			6	0.15	73						
0			7	0.16	73						
0			8	0.16	74						
0			9	0.16	74						
0			10	0.16	74						
0			11	0.15	75						
0			12	0.15	75						
Avg Angle		Avg Delta P & Temp		0.14000	73.0						
		avg √DeltaP		0.37251							
Average gas stream velocity, ft/sec.											
Vol. flow rate @ actual conditions, wacf/min											
Vol. flow rate at standard conditions, dscf/min											

$$MWd = (0.32 * O_2) + (0.44 * CO_2) + (0.28 * (100 - (CO_2 + O_2)))$$

$$MWs = (MWd * (1 - (BWS/100))) + (18 * (BWS/100))$$

$$Tsa = Ts + 460$$

$$Ps = Pb - (Pstatic/13.6)$$

$$Vs = 85.49 * Cp * \text{avg } \sqrt{\text{DeltaP}} * \sqrt{Tsa} / (Ps * MWs)$$

$$Qs(\text{act}) = 60 * Vs * As$$

$$Qs(\text{std}) = 17.64 * (1 - (BWS/100)) * (Ps/Tsa) * Qs(\text{act})$$

where:

MWd = Dry molecular weight source gas, lb/lb-mole.

MWs = Wet molecular weight source gas, lb/lb-mole.

Tsa = Source Temperature, absolute(oR)

Ps = Absolute stack static pressure, inches Hg.

Vs = Average gas stream velocity, ft/sec.

Qs(act) = Volumetric flow rate of wet stack gas at actual, wacf/min

Qs(std) = Volumetric flow rate of dry stack gas at standard conditions, dscf/min



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CHEMOURS - FAYETTEVILLE, NC
INPUTS FOR HFPO DIMER ACID CALCULATIONS

Test Data

	1	2	1 Aborted Test
Run number			
Location	VE South	VE South	VE South
Date	2/27/2018	2/27/2018	2/26/2018
Time period	1018-1208	1446-1630	1552-1735
Operator	MW	MW	MW

Inputs For Calcs.

Sq. rt. delta P	0.44193	0.41607	0.42987
Delta H	1.8146	1.6367	1.7642
Stack temp. (deg.F)	62.2	65.8	70.9
Meter temp. (deg.F)	60.8	66.0	69.3
Sample volume (act.)	70.630	67.794	68.938
Barometric press. (in.Hg)	30.38	30.34	30.10
Volume H ₂ O imp. (ml)	8.0	-6.0	3.0
Weight change sil. gel (g)	21.9	40.6	30.0
% CO ₂	0.0	0.0	0.0
% O ₂	20.9	20.9	20.9
% N ₂	79.1	79.1	79.1
Area of stack (sq.ft.)	9.620	9.620	9.620
Sample time (min.)	96.0	96.0	96.0
Static pressure (in.H ₂ O)	-0.75	-0.75	-0.75
Nozzle dia. (in.)	0.300	0.300	0.300
Meter box cal.	0.9934	0.9934	0.9934
Cp of pitot tube	0.84	0.84	0.84
Traverse points	24	24	12

RUN 1								
Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out
C	1	0.18	0.42	1.60	1.26	331.275	61	61
	2	0.26	0.51	2.37	1.54	367.870	62	61
	3	0.26	0.51	2.37	1.54	368.020	62	62
	4	0.21	0.46	1.91	1.38	402.055	63	62
	5	0.22	0.47	2.00	1.41		63	62
	6	0.22	0.47	2.00	1.41		63	62
D	1	0.23	0.48	2.09	1.45		62	62
	2	0.20	0.45	1.86	1.36		62	61
	3	0.20	0.45	1.86	1.36		62	61
	4	0.20	0.45	1.86	1.36		62	61
	5	0.18	0.42	1.67	1.29		62	61
	6	0.18	0.42	1.67	1.29		62	61
A	1	0.18	0.42	1.67	1.29		62	61
	2	0.24	0.49	2.22	1.49		62	61
	3	0.24	0.49	2.22	1.49		62	61
	4	0.20	0.45	1.86	1.36		62	61
	5	0.21	0.46	1.93	1.39		62	60
	6	0.20	0.45	1.86	1.36		62	60
B	1	0.18	0.42	1.67	1.29		62	60
	2	0.18	0.42	1.67	1.29		62	60
	3	0.16	0.40	1.48	1.22		62	60
	4	0.15	0.39	1.39	1.18		63	60
	5	0.15	0.39	1.39	1.18		63	60
	6	0.10	0.32	0.93	0.96		63	60
AVG		0.19708	0.44193	1.81458	1.34119	70.630	62.21	60.83

RUN 2

Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm	Out
C	1	0.16	0.40	1.48	1.22	402.356	66		64
	2	0.18	0.42	1.67	1.29	436.227	66		63
	3	0.18	0.42	1.67	1.29	436.337	66		65
	4	0.20	0.45	1.88	1.37	470.260	66		65
	5	0.20	0.45	1.88	1.37		66		65
	6	0.22	0.47	2.06	1.44		67		65
D	1	0.20	0.45	1.88	1.37		65		63
	2	0.18	0.42	1.69	1.30		65		64
	3	0.18	0.42	1.69	1.30		65		65
	4	0.16	0.40	1.50	1.22		65		65
	5	0.15	0.39	1.41	1.19		65		66
	6	0.10	0.32	0.94	0.97		65		66
A	1	0.18	0.42	1.69	1.30		67		67
	2	0.16	0.40	1.50	1.22		67		67
	3	0.18	0.42	1.69	1.30		67		67
	4	0.20	0.45	1.88	1.37		66		67
	5	0.20	0.45	1.88	1.37		66		67
	6	0.22	0.47	2.06	1.44		66		68
B	1	0.20	0.45	1.88	1.37		66		68
	2	0.18	0.42	1.69	1.30		66		68
	3	0.16	0.40	1.50	1.22		66		68
	4	0.15	0.39	1.41	1.19		65		68
	5	0.15	0.39	1.41	1.19		65		67
	6	0.10	0.32	0.94	0.97		65		66
AVG		0.17458	0.41607	1.63667	1.27392	67.794	65.8		66.0

RUN 1 ABORT								
Port	Point	Delta P	Sqrt Dp	Delta H	Sqrt Dh	Volume	Stack	dgm Out
C	1	0.20	0.45	1.90	1.38	259.225	71	68
	2	0.21	0.46	2.00	1.41	293.585	71	69
	3	0.22	0.47	2.09	1.45	293.680	71	69
	4	0.22	0.47	2.09	1.45	328.258	71	69
	5	0.20	0.45	1.90	1.38		71	69
	6	0.22	0.47	2.09	1.45		71	69
D	7	0.20	0.45	1.90	1.38		71	70
	8	0.18	0.42	1.71	1.31		71	70
	9	0.18	0.42	1.71	1.31		71	70
	10	0.15	0.39	1.43	1.20		71	70
	11	0.14	0.37	1.35	1.16		71	70
	12	0.12	0.35	1.14	1.07		71	70
A	1	0.20	0.45	1.90	1.38		71	70
	2	0.20	0.45	1.90	1.38		71	70
	3	0.21	0.46	2.00	1.41		71	69
	4	0.21	0.46	2.00	1.41		71	69
	5	0.22	0.47	2.09	1.45		71	69
	6	0.22	0.47	2.09	1.45		71	69
	7	0.20	0.45	1.90	1.38		71	69
	8	0.18	0.42	1.71	1.31		71	69
	9	0.17	0.41	1.62	1.27		71	69
	10	0.16	0.40	1.53	1.24		70	69
	11	0.14	0.37	1.15	1.07		70	69
	12	0.12	0.35	1.14	1.07		70	69
AVG		0.18625	0.42987	1.76417	1.32249	68.938	70.9	69.2917

ISOKINETIC FIELD DATA SHEET

Stack Chlorine's % Moisture
 Chlorine's

Mr. N.
N.Y.C.

WESTON

2/2

EPA 5 from 40CFR Part 60 App A

3

ISOKINETIC FIELD DATA SHEET

EPA Method 0010 - Semi-Volatiles

Stack Conditions	
	Assumed
Chemours	15418-002.002.0001
Chemours	% Moisture
South VE	Impinger Vol (ml)
STK	Silica gel (g)
	CO2, % by Vol
2	O2, % by Vol
M0010	Temperature (°F)
26/FEB2018	Meter Temp (°F)
South VE	Static Press (in H ₂ O)
Stack	-0.75
21/2/7/18	Ambient Temp (°F)
30.34	73
MFG MATT	WIND DIRECTION

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三

EPA Method 0010 from EPA SW-846

三

ISOKINETIC FIELD DATA SHEET

EPA Method 0010 - Semi-Volatiles

Client W.O. # 15418.002.002.0001

Chemours

Project ID	Chemours	% Moisture	Meter Box ID	Meter Box Y
Mode/Source ID	South VE	Impinger Vol (ml)	Pond	0.9934
Samp. Loc. ID	STK	Silica gel (g)	Boro	0.9750
Run No. ID	1	CO ₂ , % by Vol	Probe Material	0.1
Test Method ID	MM0010	O ₂ , % by Vol	Pilot / Thermocouple ID	0.1
Date ID	26FEB2018	Temperature (°F)	Pilot Coefficient	0.1
Source/Location	South VE - Stack	Meter Temp (°F)	Nozzle ID	Method 006-0302 G300
Sample Date	2/26/18	Static Press (in H ₂ O)	Nozzle Measurements	Method 006-0302 G300
Baro. Press (in Hg)	35.16	Avg Nozzle Dia (in)	0.382	Temp Check
Operator	MAIT WINKEL KN	Area of Stack (ft ²)	0.123	Meter Box Temp
Ambient Temp (°F)	65	Sample Time	9:02	Reference Temp
Total Traverse Pts	15	Pass/Fail (+/- 2°)	Pass	Pass/Fail
		Temp Change Response:	yes / no	yes / no

Page 6 of 6

K Factor 9.561

TRAVERSE POINT NO.	SAMPLE TIME (min)	CLOCK TIME (plant time)	VELOCITY PRESSURE DATA P (in H ₂ O)	DRY GAS METER READING (ft ³)	ORIFICE PRESSURE Delta H (in H ₂ O)	STACK TEMP (°F)	DSW OUTLET TEMP (°F)	PROBE TEMP (°F)	FILTER EXIT TEMP (°F)	IMPIINGER EXIT TEMP (°F)	SAMPLE TRAIN IN VAC (in Hg)	MAX EXH TEMP (°F)	COMMENTS	Final
4	1	9	0.20	1.90	2.64	1.12	71	69	99	102	64	76		
5	2	8	0.21	1.90	2.65	1.30	71	69	100	102	63	73		
6	3	12	0.22	1.90	2.62	3.00	71	69	100	102	60	73		
7	4	16	0.22	1.90	2.71	3.37	71	69	100	99	58	47		
8	5	20	0.30	1.90	2.74	4.0	71	69	100	99	58	47		
9	6	24	0.22	1.89	2.77	4.7	71	69	100	102	57	47		
10	7	28	0.25	1.90	2.90	6.1	71	70	100	98	56	44		
11	8	32	0.13	1.71	2.83	3.5	71	70	100	102	56	44		
12	9	36	0.18	1.71	2.86	3.1	71	70	100	98	56	44		
13	10	40	0.15	1.43	2.88	7.1	71	70	100	98	56	44		
14	11	44	0.14	1.35	2.91	9.19	71	70	100	97	56	44		
15	12	48	1.14	2.63	2.85	71	70	100	99	52	33	44		
16	13	52	1.64	8.12	2.93	6.85	71	70	100	99	52	33		
17	14	56	1.64	1.14	2.93	6.85	71	70	100	99	52	33		
18	15	60	1.64	0.20	1.90	2.93	6.85	71	70	99	59	59	59	
19	16	64	0.20	1.90	3.00	8.0	71	70	100	99	59	53		
20	17	68	0.21	2.30	3.02	8.6	71	69	100	99	59	53		
21	18	72	0.21	2.30	3.05	8.2	71	69	100	99	59	53		
22	19	76	0.22	2.09	3.08	8.3	71	69	100	101	61	54		
23	20	80	0.22	2.09	3.12	9.0	71	69	100	100	61	54		
24	21	84	0.22	2.09	3.15	9.01	71	69	100	100	61	54		
25	22	88	0.22	2.09	3.18	1.15	71	69	100	98	56	55		
26	23	92	0.13	1.63	3.20	7.1	70	69	100	100	55	50		
27	24	96	0.17	1.63	3.20	7.1	70	69	100	100	55	50		
28	25	100	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
29	26	104	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
30	27	108	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
31	28	112	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
32	29	116	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
33	30	120	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
34	31	124	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
35	32	128	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
36	33	132	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
37	34	136	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
38	35	140	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
39	36	144	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
40	37	148	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
41	38	152	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
42	39	156	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
43	40	160	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
44	41	164	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
45	42	168	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
46	43	172	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
47	44	176	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
48	45	180	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
49	46	184	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
50	47	188	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
51	48	192	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
52	49	196	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
53	50	200	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
54	51	204	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
55	52	208	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
56	53	212	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
57	54	216	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
58	55	220	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
59	56	224	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
60	57	228	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
61	58	232	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
62	59	236	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
63	60	240	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
64	61	244	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
65	62	248	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
66	63	252	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
67	64	256	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
68	65	260	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
69	66	264	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
70	67	268	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
71	68	272	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
72	69	276	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
73	70	280	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
74	71	284	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
75	72	288	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
76	73	292	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
77	74	296	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
78	75	300	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
79	76	304	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
80	77	308	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
81	78	312	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
82	79	316	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
83	80	320	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
84	81	324	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
85	82	328	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
86	83	332	0.14	1.53	3.23	7.5	70	69	100	98	54	43		
87	84	336	0.14	1.53	3.23	7.5	70	69	100	98	54	43		

SAMPLE RECOVERY FIELD DATA

EPA Method 0010 - Semi-Volatiles

Client

Chemours

W.O. #

15418.002.002.0001

Location/Plant

Fayetteville, NC

Source & Location

South VE Stack

Run No. 1

Sample Date 2/27/18

Recovery Date 2/27/18

Sample I.D. Chemours - South VE - STK - 1 - M0010 -

Analyst PMB

Filter Number —

Impinger

Contents	1	2	3	4	5	6	7	Imp.Total	8	Total
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O						Silica Gel	
Final	2	98	106	2						321.8
Initial	0	100	100	0						300
Gain	2	-2	6	2						21.8

Impinger Color clear

Labeled? ✓

Silica Gel Condition used

Sealed? ✓

Run No. 2

Sample Date 2/27/18

Recovery Date 2/27/18

Sample I.D. Chemours - South VE - STK - 2 - M0010 -

Analyst PMB

Filter Number —

Impinger

Contents	1	2	3	4	5	6	7	Imp.Total	8	Total
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O						Silica Gel	
Final	2	89	103							340.6
Initial	0	100	100							300
Gain	2	-11	3					-6		34.6

Impinger Color clear

Labeled? ✓

Silica Gel Condition used

Sealed? ✓

Run No. 3

Sample Date —

Recovery Date —

Sample I.D. Chemours - South VE - STK - 3 - M0010 -

Analyst —

Filter Number —

Impinger

Contents	1	2	3	4	5	6	7	Imp.Total	8	Total
Contents	Empty	HPLC H ₂ O	HPLC H ₂ O						Silica Gel	
Final										
Initial		100	100							300
Gain										

Impinger Color —

Labeled? —

Silica Gel Condition —

Sealed? —

Check COC for Sample IDs of Media Blanks



METHODS AND ANALYZERS

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

File: C:\DATA\Chemours\fayetteville\february\030118 PPA day 1.cem
Program Version: 2.0, built 21 Feb 2015 File Version: 2.02
Computer: WSWCAIRSERVICES Trailer: 27
Analog Input Device: Keithley KUSB-3108

Channel 1

Analyte	O ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	25.0
Span Concentration, %	21.0

Channel 2

Analyte	CO ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	20.0
Span Concentration, %	16.6

CALIBRATION DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 07:42

O₂

Method: EPA 3A
Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
12.0	CC62094
21.0	SG9169108

Calibration Results

Zero	10 mv
Span, 21.0 %	8011 mv

Curve Coefficients

Slope	Intercept
381.0	10

CO₂

Method: EPA 3A
Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
8.9	CC62094
16.6	SG9169108

Calibration Results

Zero	1 mv
Span, 16.6 %	8293 mv

Curve Coefficients

Slope	Intercept
500.1	1

CALIBRATION ERROR DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 07:42

O₂

Method: EPA 3A

Span Conc. 21.0 %

Slope 381.0 Intercept 10.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
12.0	12.0	0.0	0.0	Pass
21.0	21.0	0.0	0.0	Pass

CO₂

Method: EPA 3A

Span Conc. 16.6 %

Slope 500.1 Intercept 1.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
8.9	8.6	-0.3	-1.8	Pass
16.6	16.6	0.0	0.0	Pass

BIAS

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 07:52

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.2	0.2	1.0	Pass
Span	12.0	12.1	0.1	0.5	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

RUN SUMMARY

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Calibration 1

Method Conc. Units	O ₂ EPA 3A %	CO ₂ EPA 3A %
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Time: 09:20 to 11:14

Run Averages

20.8 0.0

Pre-run Bias at 07:52

Zero Bias	0.2	0.1
Span Bias	12.1	8.5
Span Gas	12.0	8.9

Post-run Bias at 11:52

Zero Bias	0.1	0.0
Span Bias	11.9	8.4
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

20.9 0.0

Analyst Air 0.0 CO₂
20.9 O₂

BIAS AND CALIBRATION DRIFT

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 11:52

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	11.9	-0.1	-0.5	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.2	0.1	-0.1	-0.5	Pass
Span	12.1	11.9	-0.2	-1.0	Pass

*Bias No. 1

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.4	-0.2	-1.2	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.1	0.0	-0.1	-0.6	Pass
Span	8.5	8.4	-0.1	-0.6	Pass

*Bias No. 1



RUN SUMMARY

Number 4

Client: Chemours
 Location: Fayetteville, NC
 Source: PPA

Project Number: 15418.002.002.0001
 Operator: SR
 Date: 1 Mar 2018

Calibration 1

Method	O ₂ EPA 3A %	CO ₂ EPA 3A %
Conc. Units		

Time: 11:57 to 13:53

Run Averages

20.8 0.0

Pre-run Bias at 11:52

Zero Bias	0.1	0.0
Span Bias	11.9	8.4
Span Gas	12.0	8.9

Post-run Bias at 11:52

Zero Bias	0.1	0.0
Span Bias	11.9	8.4
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

21.1 0.0

Ambient Air
 20.9% O₂
 0.0% CO₂

BIAS AND CALIBRATION DRIFT

Number 3

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 11:52

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	11.9	-0.1	-0.5	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.1	0.1	0.0	0.0	Pass
Span	11.9	11.9	0.0	0.0	Pass

*Bias No. 2

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.4	-0.2	-1.2	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.4	8.4	0.0	0.0	Pass

*Bias No. 2



RUN SUMMARY

Number 5

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Calibration 1

Method Conc. Units	O ₂ EPA 3A %	CO ₂ EPA 3A %
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Time: 14:21 to 16:18

Run Averages

20.8 0.0

Pre-run Bias at 11:52

Zero Bias	0.1	0.0
Span Bias	11.9	8.4
Span Gas	12.0	8.9

Post-run Bias at 16:32

Zero Bias	0.1	0.1
Span Bias	11.9	8.3
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

21.0 0.0

Ambient Air
20.9 % O₂
0.0 % CO₂

BIAS AND CALIBRATION DRIFT

Number 4

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 1 Mar 2018

Start Time: 16:32

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	11.9	-0.1	-0.5	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.1	0.1	0.0	0.0	Pass
Span	11.9	11.9	0.0	0.0	Pass

*Bias No. 3

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.6	8.3	-0.3	-1.8	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.4	8.3	-0.1	-0.6	Pass

*Bias No. 3



METHODS AND ANALYZERS

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 2 Mar 2018

File: C:\DATA\Chemours\fayetteville\february\030218_ppa.cem
Program Version: 2.0, built 21 Feb 2015 File Version: 2.02
Computer: WSWCAIRSERVICES Trailer: 27
Analog Input Device: Keithley KUSB-3108

Channel 1

Analyte	O ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	25.0
Span Concentration, %	21.0

Channel 2

Analyte	CO ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	20.0
Span Concentration, %	16.6

CALIBRATION DATA

Number 1

Client: **Chemours**
Location: **Fayetteville, NC**
Source: **PPA**

Project Number: **15418.002.002.0001**
Operator: **SR**
Date: **2 Mar 2018**

Start Time: 07:19

O₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
12.0	CC62094
21.0	SG9169108

Calibration Results

Zero	10 mv
Span, 21.0 %	8013 mv

Curve Coefficients

Slope	Intercept
381.1	10

CO₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
8.9	CC62094
16.6	SG9169108

Calibration Results

Zero	1 mv
Span, 16.6 %	8292 mv

Curve Coefficients

Slope	Intercept
500.1	1

CALIBRATION ERROR DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 2 Mar 2018

Start Time: 07:22

O₂

Method: EPA 3A
Span Conc. 21.0 %

Slope 381.1 Intercept 10.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
12.0	12.0	0.0	0.0	Pass
21.0	21.0	0.0	0.0	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Slope 500.1 Intercept 1.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
8.9	8.6	-0.3	-1.8	Pass
16.6	16.6	0.0	0.0	Pass

BIAS

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 2 Mar 2018

Start Time: 07:26

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	12.0	12.0	0.0	0.0	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

RUN SUMMARY

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Project Number: 15418.002.002.0001
Operator: SR
Date: 2 Mar 2018

Calibration 1

Method	O ₂ EPA 3A %	CO ₂ EPA 3A %
Conc. Units		

Time: 08:15 to 10:11

Run Averages

21.0 0.0

Pre-run Bias at 07:26

Zero Bias	0.0	0.0
Span Bias	12.0	8.5
Span Gas	12.0	8.9

Post-run Bias at 10:24

Zero Bias	0.1	0.1
Span Bias	12.1	8.5
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

20.9 0.0

Ambient Air
20.9 % O₂
0.0 % CO₂

BIAS AND CALIBRATION DRIFT

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: PPA

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 2 Mar 2018

Start Time: 10:24

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	12.1	0.1	0.5	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	12.1	0.1	0.5	Pass

*Bias No. 1

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.5	8.5	0.0	0.0	Pass

*Bias No. 1



METHODS AND ANALYZERS

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Client Folders.A-F\Chemours\15418.002.002 Fayetteville 2018 Stack Testing\Data\Week of February 26th\0221

Program Version: 2.0, built 21 Feb 2015 **File Version:** 2.02
Computer: WSWCAIRSERVICES **Trailer:** 27
Analog Input Device: MCC USB-1608G

Channel 1

Analyte	O ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	25.0
Span Concentration, %	21.0

Channel 2

Analyte	CO ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	20.0
Span Concentration, %	16.6

CALIBRATION DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Start Time: 08:06

O₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
12.0	CC62094
21.0	SG9169108

Calibration Results

Zero	20 mv
Span, 21.0 %	8011 mv

Curve Coefficients

Slope	Intercept
380.5	20

CO₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
8.9	CC62094
16.6	SG9169108

Calibration Results

Zero	-1 mv
Span, 16.6 %	8286 mv

Curve Coefficients

Slope	Intercept
499.8	-1



CALIBRATION ERROR DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Start Time: 08:06

O₂

Method: EPA 3A
Span Conc. 21.0 %

Slope 380.5 Intercept 20.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
12.0	11.9	-0.1	-0.5	Pass
21.0	21.0	0.0	0.0	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Slope 499.8 Intercept -1.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
8.9	8.6	-0.3	-1.8	Pass
16.6	16.6	0.0	0.0	Pass

BIAS

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Start Time: 08:12

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	12.0	12.0	0.0	0.0	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

RUN SUMMARY

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Calibration 1

Method Conc. Units	O ₂ EPA 3A %	CO ₂ EPA 3A %
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Time: 10:18 to 12:08

Run Averages

20.9 0.1

Pre-run Bias at 08:12

Zero Bias	0.0	0.0
Span Bias	12.0	8.5
Span Gas	12.0	8.9

Post-run Bias at 13:37

Zero Bias	0.1	0.1
Span Bias	12.0	8.5
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

20.9 0.1

Ambient Air
20.9 % O₂
0.0 % CO₂

BIAS AND CALIBRATION DRIFT

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Start Time: 13:37

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	12.0	0.0	0.0	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	12.0	0.0	0.0	Pass

*Bias No. 1

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.6	Pass
Span	8.5	8.5	0.0	0.0	Pass

*Bias No. 1



RUN SUMMARY

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Calibration 1

Method Conc. Units	O ₂ EPA 3A %	CO ₂ EPA 3A %
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Time: 14:46 to 16:30

Run Averages

20.9 0.2

Pre-run Bias at 13:37

Zero Bias	0.1	0.1
Span Bias	12.0	8.5
Span Gas	12.0	8.9

Post-run Bias at 16:53

Zero Bias	0.1	0.0
Span Bias	12.0	8.5
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

20.9 0.1

Ambient Air
20.9 % O₂
0.0 % CO₂

BIAS AND CALIBRATION DRIFT

Number 3

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 27 Feb 2018

Start Time: 16:53

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	Pass
Span	12.0	12.0	0.0	0.0	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.1	0.1	0.0	0.0	Pass
Span	12.0	12.0	0.0	0.0	Pass

*Bias No. 2

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.1	0.0	-0.1	-0.6	Pass
Span	8.5	8.5	0.0	0.0	Pass

*Bias No. 2



METHODS AND ANALYZERS

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

File: C:\DATA\Chemours\fayetteville\february\022618 VES RUN 1 and 2.cem
Program Version: 2.0, built 21 Feb 2015 File Version: 2.02
Computer: WSWCAIRSERVICES Trailer: 27
Analog Input Device: Keithley KUSB-3108

Channel 1

Analyte	O ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	25.0
Span Concentration, %	21.0

Channel 2

Analyte	CO ₂
Method	EPA 3A, Using Bias
Analyzer Make, Model & Serial No.	Servomex 4900
Full-Scale Output, mv	10000
Analyzer Range, %	20.0
Span Concentration, %	16.6

CALIBRATION DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Start Time: 13:16

O₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
12.0	CC62094
21.0	SG9169108

Calibration Results

Zero	10 mv
Span, 21.0 %	8014 mv

Curve Coefficients

Slope	Intercept
381.1	10

CO₂

Method: EPA 3A

Calibration Type: Linear Zero and High Span

Calibration Standards

%	Cylinder ID
8.9	CC62094
16.6	SG9169108

Calibration Results

Zero	-1 mv
Span, 16.6 %	8289 mv

Curve Coefficients

Slope	Intercept
500.0	-1



CALIBRATION ERROR DATA

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Start Time: 13:16

O₂

Method: EPA 3A

Span Conc. 21.0 %

Slope 381.1 Intercept 10.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
12.0	12.0	0.0	0.0	Pass
21.0	21.0	0.0	0.0	Pass

CO₂

Method: EPA 3A

Span Conc. 16.6 %

Slope 500.0 Intercept -1.0

Standard	Result	Difference	Error	Status
%	%	%	%	
Zero	0.0	0.0	0.0	Pass
8.9	8.6	-0.3	-1.8	Pass
16.6	16.6	0.0	0.0	Pass

BIAS

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Start Time: 13:21

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	
Gas	%	%	%	%	Status
Zero	0.0	0.0	0.0	0.0	Pass
Span	12.0	12.0	0.0	0.0	Pass

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	
Gas	%	%	%	%	Status
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

BIAS AND CALIBRATION DRIFT

Number 2

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Calibration 1

Start Time: 15:29

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	12.0	11.9	-0.1	-0.5	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	12.0	11.9	-0.1	-0.5	Pass

*Bias No. 1

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.6	8.5	-0.1	-0.6	Pass

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	Pass
Span	8.5	8.5	0.0	0.0	Pass

*Bias No. 1



RUN SUMMARY

Number 1

Client: Chemours
Location: Fayetteville, NC
Source: VES

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Calibration 1

Method Conc. Units	O ₂ EPA 3A %	CO ₂ EPA 3A %
-----------------------	-------------------------------	--------------------------------

Time: 15:52 to 17:35

Run Averages

20.7 0.2

Pre-run Bias at 15:29

Zero Bias	0.0	0.0
Span Bias	11.9	8.5
Span Gas	12.0	8.9

Post-run Bias at 17:38

Zero Bias	0.1	0.0
Span Bias	11.9	8.6
Span Gas	12.0	8.9

Averages corrected for the average of the pre-run and post-run bias

20.9 0.2

Ambient Air
20.9 % O₂
0.0 % CO₂

BIAS AND CALIBRATION DRIFT

Number 3

Client: Chemours
Location: Fayetteville, NC
Source: VES

Calibration 1

Project Number: 15418.002.002.0001
Operator: SR
Date: 26 Feb 2018

Start Time: 17:38

O₂

Method: EPA 3A
Span Conc. 21.0 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	
Span	12.0	11.9	-0.1	-0.5	

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.1	0.1	0.5	
Span	11.9	11.9	0.0	0.0	

*Bias No. 2

CO₂

Method: EPA 3A
Span Conc. 16.6 %

Bias Results					
Standard	Cal.	Bias	Difference	Error	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	
Span	8.6	8.6	0.0	0.0	

Calibration Drift					
Standard	Initial*	Final	Difference	Drift	Status
Gas	%	%	%	%	
Zero	0.0	0.0	0.0	0.0	
Span	8.5	8.6	0.1	0.6	

*Bias No. 2



APPENDIX C
LABORATORY ANALYTICAL DESCRIPTION AND
ANALYTICAL REPORT

Note: The complete analytical report is included on the attached CD.

TestAmerica HFPO-DA Method 0010 Sampling Train Fraction Preparation and Analysis Summary

The Method 0010 Sampling train fractions are transported from the Chemours Plant site in Fayetteville, NC to the TestAmerica Laboratory in Knoxville, TN for processing. The fractions are collected and recovered from the sampling train according to SW-846 additional guidelines found in Method 3542 for the breakdown of Method 0010 components. The train fraction designations are as follows:

- Front-Half Composite—consisting of a particulate filter, and a probe, nozzle and front portion of the filter holder bell housing glassware solvent rinses,
- Back-Half Composite—consisting of an XAD-2 resin module, and the back portion of the filter holder bell housing with connecting glassware solvent rinses,
- Condensate and Impinger Contents—consisting of the D.I. Water content used to initially charge the impingers and Condensate collected during the sampling run.
- Breakthrough XAD-2 Resin Tube—consisting of a standard XAD-2 module placed behind the Condensate Impingers as a final quality assurance indicator of the lack of breakthrough of the HFPO-DA through the sampling train.

In the laboratory, the Front-Half sample fraction components are placed in to an HDPE bottle and spiked with $^{13}\text{C}_3$ -HFPO isotope dilution internal standard (IDA). This composite is extracted with basic methanol for 18 hours at room temperature followed by acidification using formic acid. The final formulation is filtered through a 0.45 μm filter and analyzed by Method 8321A for HFPO-DA. Instrumental analysis for these extracts is conducted in the TestAmerica Denver Laboratory.

The Back-Half sample fraction components, including the approximately 40 grams of XAD-2 resin material, are transferred to an HDPE bottle and spiked with the IDA internal standard. This Back-Half Composite is extracted at room temperature using two (2) successive 18 hour periods and separate portions of basic methanol. The XAD-2 resin material is removed, and the extraction fluid is acidified using formic acid. The final formulation is filtered through a 0.45 μm filter and analyzed by Method 8321A for HFPO-DA in the TestAmerica Denver Laboratory.

The Condensate Composite fraction of the sampling train is measured to record the total volume in the composite followed by preparation by concentration on a solid phase extractor (SPE). The SPE cartridge is treated with water/methanol mixture to release the HFPO-DA. The extract is run for the HFPO-DA using Method 8321A.

The Breakthrough XAD-2 Resin Tube fraction is prepared and analyzed by the same process as that used for the Back-half sampling train fraction.

Due to the sensitivity of the LCMS methodology, concentrations levels collected on Method 0010 sampling trains of HFPO-DA may require significant dilutions in order to report analytical data that is "hard quantified" within the calibration range of the process. The diluted samples avoid "E" (estimated) values for the results of the HFPO-DA.

ANALYTICAL REPORT

Job Number: 140-10862-1

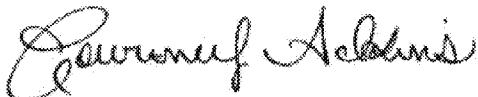
Job Description: South VE Emissions Test

Contract Number: LBIO-67048

For:

Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogleton Road
Newark, DE 19713

Attention: Michael Aucoin



Approved for release.
Courtney M Adkins
Project Manager I
3/16/2018 12:18 PM

Courtney M Adkins, Project Manager I
5815 Middlebrook Pike, Knoxville, TN, 37921
(865)291-3000
courtney.adkins@testamericainc.com
03/16/2018

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TestAmerica Laboratories, Inc.

TestAmerica Knoxville 5815 Middlebrook Pike, Knoxville, TN 37921
Tel (865) 291-3000 Fax (865) 584-4315 www.testamericainc.com

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Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Qualifiers

LCMS	
Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Method	Method Description	Protocol	Laboratory
8321A	PFOA and PFOS	SW846	TAL DEN
8321A	HFPO-DA	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Knoxville

Sample Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10862-1	C-2801,2802 R1 M0010 FH	Air	02/27/18 00:00	03/03/18 08:00
140-10862-2	C-2803,2804,2806 R1 M0010 BH	Air	02/27/18 00:00	03/03/18 08:00
140-10862-3	C-2805 R1 M0010 IMP COND	Air	02/27/18 00:00	03/03/18 08:00
140-10862-4	C-2807 R1 M0010 XAD-2	Air	02/27/18 00:00	03/03/18 08:00
140-10862-5	C-2808,2809 R2 M0010 FH	Air	02/27/18 00:00	03/03/18 08:00
140-10862-6	C-2810,2811,2813 R2 M0010 BH	Air	02/27/18 00:00	03/03/18 08:00
140-10862-7	C-2812 R2 M0010 IMP COND	Air	02/27/18 00:00	03/03/18 08:00
140-10862-8	C-2814 R2 M0010 XAD-2	Air	02/27/18 00:00	03/03/18 08:00
140-10862-9	C-2815,2816 R3 M0010 FH	Air	02/26/18 00:00	03/03/18 08:00
140-10862-10	C-2817,2818,2820 R3 M0010 BH	Air	02/26/18 00:00	03/03/18 08:00
140-10862-11	C-2819 R3 M0010 IMP COND	Air	02/26/18 00:00	03/03/18 08:00
140-10862-12	C-2821 R3 M0010 XAD-2	Air	02/26/18 00:00	03/03/18 08:00
140-10862-13	C-2822,2823 R QC M0010 FH BT	Air	02/27/18 00:00	03/03/18 08:00
140-10862-14	C-2824,2825,2827 R QC M0010 BH BT	Air	02/27/18 00:00	03/03/18 08:00
140-10862-15	C-2826 R QC M0010 IMP COND BT	Air	02/27/18 00:00	03/03/18 08:00
140-10862-16	C-2828 R QC M0010 XAD-2 BT	Air	02/27/18 00:00	03/03/18 08:00
140-10862-17	C-2829 R QC M0010 DI WATER RB	Air	02/27/18 00:00	03/03/18 08:00
140-10862-18	C-2830 R QC M0010 MEOH WITH 5% NH4OH RB	Air	02/27/18 00:00	03/03/18 08:00
140-10862-19	C-2831 R QC M0010 XAD-2 RB	Air	03/02/18 00:00	03/03/18 08:00
140-10862-20	C-2832 R QC M0010 MEOH WITH 5% NH4OH TB	Air	02/27/18 00:00	03/03/18 08:00
140-10862-21	C-2833 R QC M0010 XAD-2 TB	Air	03/02/18 00:00	03/03/18 08:00
140-10862-22	C-2834,2835,2836 R QC M0010 PROOF BLANK	Air	02/27/18 00:00	03/03/18 08:00
140-10862-23	A-6414 MEDIA CHECK XAD	Air	02/26/18 00:00	03/03/18 08:00
140-10862-24	A-6415 MEDIA CHECK FILTER	Air	02/26/18 00:00	03/03/18 08:00

TestAmerica Knoxville

Job Narrative 140-10862-1

Sample Receipt

The samples were received on March 3, 2018 at 8:00 AM in good condition and properly preserved.. The temperatures of the 5 coolers at receipt time were 1.3° C, 1.7° C, 2.3° C, 2.7° C and 2.9° C.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times, and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

Method 0010/Method 3542 Sampling Train Preparation

Train fractions were extracted and prepared for analysis in TestAmerica's Knoxville laboratory. Extracts and condensate samples were forwarded to the Denver laboratory for HFPO-DA analysis. All results are reported in "Total ug" per sample.

LCMS

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Comments

Reporting Limits (RLs) and Method Detection Limits (MDLs) for the HFPO-DA used in this report were derived in Denver for reporting soils and water samples. Method 0010 sampling train matrix specific RLs and MDLs have not been established for HFPO-DA. The soil and water limits are expected to be reasonable approximations of the actual matrix specific limits, under these conditions.

The expanded deliverable section of the package is split into two sections: 8321A_HFPO_DU is specific to condensates, and Method DV-LC-0012 contains the XAD and Filter data. Both methods share the same calibration on 10/10/17. A single instance of this calibration and the associated detection limit check (DLCK) and Initial calibration verification (ICV) can be found in the 8321A_HFPO_DU section of the package as part of our automated package generation procedures.

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

LCMS

Analysis Batch: 404345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-404345/13	Lab Control Sample	Total/NA	Air	8321A	

Prep Batch: 406763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-1	C-2801,2802 R1 M0010 FH	Total/NA	Air	None	
140-10862-5	C-2808,2809 R2 M0010 FH	Total/NA	Air	None	
140-10862-9	C-2815,2816 R3 M0010 FH	Total/NA	Air	None	
140-10862-13	C-2822,2823 R QC M0010 FH BT	Total/NA	Air	None	
140-10862-18	C-2830 R QC M0010 MEOH WITH 5% NH4OH F	Total/NA	Air	None	
140-10862-20	C-2832 R QC M0010 MEOH WITH 5% NH4OH T	Total/NA	Air	None	
140-10862-24	A-6415 MEDIA CHECK FILTER	Total/NA	Air	None	
MB 280-406763/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406763/2-A	Lab Control Sample	Total/NA	Air	None	

Prep Batch: 406764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-2	C-2803,2804,2806 R1 M0010 BH	Total/NA	Air	None	
140-10862-4	C-2807 R1 M0010 XAD-2	Total/NA	Air	None	
140-10862-6	C-2810,2811,2813 R2 M0010 BH	Total/NA	Air	None	
140-10862-8	C-2814 R2 M0010 XAD-2	Total/NA	Air	None	
140-10862-10	C-2817,2818,2820 R3 M0010 BH	Total/NA	Air	None	
140-10862-12	C-2821 R3 M0010 XAD-2	Total/NA	Air	None	
140-10862-14	C-2824,2825,2827 R QC M0010 BH BT	Total/NA	Air	None	
140-10862-16	C-2828 R QC M0010 XAD-2 BT	Total/NA	Air	None	
140-10862-19	C-2831 R QC M0010 XAD-2 RB	Total/NA	Air	None	
140-10862-21	C-2833 R QC M0010 XAD-2 TB	Total/NA	Air	None	
140-10862-22	C-2834,2835,2836 R QC M0010 PROOF BLANK	Total/NA	Air	None	
140-10862-23	A-6414 MEDIA CHECK XAD	Total/NA	Air	None	
MB 280-406764/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406764/2-A	Lab Control Sample	Total/NA	Air	None	

Prep Batch: 406765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-3	C-2805 R1 M0010 IMP COND	Total/NA	Air	None	
140-10862-7	C-2812 R2 M0010 IMP COND	Total/NA	Air	None	
140-10862-11	C-2819 R3 M0010 IMP COND	Total/NA	Air	None	
140-10862-15	C-2826 R QC M0010 IMP COND BT	Total/NA	Air	None	
140-10862-17	C-2829 R QC M0010 DI WATER RB	Total/NA	Air	None	
MB 280-406765/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406765/2-A	Lab Control Sample	Total/NA	Air	None	
LCSD 280-406765/14-A	Lab Control Sample Dup	Total/NA	Air	None	
LLCS 280-406765/15-A	Lab Control Sample	Total/NA	Air	None	

Analysis Batch: 407389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-1	C-2801,2802 R1 M0010 FH	Total/NA	Air	8321A	406763
140-10862-5	C-2808,2809 R2 M0010 FH	Total/NA	Air	8321A	406763
140-10862-9	C-2815,2816 R3 M0010 FH	Total/NA	Air	8321A	406763
140-10862-13	C-2822,2823 R QC M0010 FH BT	Total/NA	Air	8321A	406763
140-10862-18	C-2830 R QC M0010 MEOH WITH 5% NH4OH F	Total/NA	Air	8321A	406763
140-10862-20	C-2832 R QC M0010 MEOH WITH 5% NH4OH T	Total/NA	Air	8321A	406763

TestAmerica Knoxville

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

LCMS (Continued)

Analysis Batch: 407389 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-24	A-6415 MEDIA CHECK FILTER	Total/NA	Air	8321A	406763
MB 280-406763/1-A	Method Blank	Total/NA	Air	8321A	406763
LCS 280-406763/2-A	Lab Control Sample	Total/NA	Air	8321A	406763

Analysis Batch: 407390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-2	C-2803,2804,2806 R1 M0010 BH	Total/NA	Air	8321A	406764
140-10862-4	C-2807 R1 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10862-6	C-2810,2811,2813 R2 M0010 BH	Total/NA	Air	8321A	406764
140-10862-8	C-2814 R2 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10862-10	C-2817,2818,2820 R3 M0010 BH	Total/NA	Air	8321A	406764
140-10862-12	C-2821 R3 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10862-14	C-2824,2825,2827 R QC M0010 BH BT	Total/NA	Air	8321A	406764
140-10862-16	C-2828 R QC M0010 XAD-2 BT	Total/NA	Air	8321A	406764
140-10862-19	C-2831 R QC M0010 XAD-2 RB	Total/NA	Air	8321A	406764
140-10862-21	C-2833 R QC M0010 XAD-2 TB	Total/NA	Air	8321A	406764
140-10862-22	C-2834,2835,2836 R QC M0010 PROOF BLANK	Total/NA	Air	8321A	406764
140-10862-23	A-6414 MEDIA CHECK XAD	Total/NA	Air	8321A	406764
MB 280-406764/1-A	Method Blank	Total/NA	Air	8321A	406764
LCS 280-406764/2-A	Lab Control Sample	Total/NA	Air	8321A	406764

Analysis Batch: 407565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-5	C-2808,2809 R2 M0010 FH	Total/NA	Air	8321A	406763
140-10862-9	C-2815,2816 R3 M0010 FH	Total/NA	Air	8321A	406763

Analysis Batch: 407567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10862-3	C-2805 R1 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10862-7	C-2812 R2 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10862-11	C-2819 R3 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10862-15	C-2826 R QC M0010 IMP COND BT	Total/NA	Air	8321A	406765
140-10862-17	C-2829 R QC M0010 DI WATER RB	Total/NA	Air	8321A	406765
MB 280-406765/1-A	Method Blank	Total/NA	Air	8321A	406765
LCS 280-406765/2-A	Lab Control Sample	Total/NA	Air	8321A	406765
LCSD 280-406765/14-A	Lab Control Sample Dup	Total/NA	Air	8321A	406765
LLCS 280-406765/15-A	Lab Control Sample	Total/NA	Air	8321A	406765

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2801,2802 R1 M0010 FH
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-1
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	9.42		0.0750	0.0750	ug/Sample		03/05/18 14:00	03/09/18 12:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200				03/05/18 14:00	03/09/18 12:12	1

Client Sample ID: C-2803,2804,2806 R1 M0010 BH
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-2
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	5.70		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	68		50 - 200				03/05/18 04:38	03/09/18 13:10	1

Client Sample ID: C-2805 R1 M0010 IMP COND
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-3
Matrix: Air

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0183	J	0.0500	0.00255	ug/Sample		03/11/18 10:52	03/12/18 09:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	86		50 - 200				03/11/18 10:52	03/12/18 09:29	1

Client Sample ID: C-2807 R1 M0010 XAD-2
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-4
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	73		50 - 200				03/05/18 04:38	03/09/18 13:14	1

Client Sample ID: C-2808,2809 R2 M0010 FH
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-5
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	47.6	E	0.100	0.100	ug/Sample		03/05/18 14:00	03/09/18 12:15	1
HFPO-DA	45.4		0.500	0.500	ug/Sample		03/05/18 14:00	03/12/18 08:27	5

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2808,2809 R2 M0010 FH
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-5
Matrix: Air

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	71		50 - 200	03/05/18 14:00	03/09/18 12:15	1
13C3 HFPO-DA	81	D	50 - 200	03/05/18 14:00	03/12/18 08:27	5

Client Sample ID: C-2810,2811,2813 R2 M0010 BH
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-6
Matrix: Air

Method: 8321A - PFOA and PFOS	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte									
HFPO-DA	7.12		0.200	0.200	ug/Sample	03/05/18 04:38	03/09/18 13:17		1
Surrogate	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	69		50 - 200			03/05/18 04:38	03/09/18 13:17		1

Client Sample ID: C-2812 R2 M0010 IMP COND
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-7
Matrix: Air

Method: 8321A - HFPO-DA	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte									
HFPO-DA	0.0413	J	0.0500	0.00255	ug/Sample	03/11/18 10:52	03/12/18 09:32		1
Surrogate	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	91		50 - 200			03/11/18 10:52	03/12/18 09:32		1

Client Sample ID: C-2814 R2 M0010 XAD-2
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-8
Matrix: Air

Method: 8321A - PFOA and PFOS	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte									
HFPO-DA	5.24		0.200	0.200	ug/Sample	03/05/18 04:38	03/09/18 13:20		1
Surrogate	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	54		50 - 200			03/05/18 04:38	03/09/18 13:20		1

Client Sample ID: C-2815,2816 R3 M0010 FH
Date Collected: 02/26/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-9
Matrix: Air

Method: 8321A - PFOA and PFOS	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte									
HFPO-DA	45.9	E	0.125	0.125	ug/Sample	03/05/18 14:00	03/09/18 12:18		1
HFPO-DA	46.9		0.625	0.625	ug/Sample	03/05/18 14:00	03/12/18 08:30		5
Surrogate	%Recovery	Qualifier	Limits						
13C3 HFPO-DA	76		50 - 200			03/05/18 14:00	03/09/18 12:18		1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC
The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2815,2816 R3 M0010 FH
Date Collected: 02/26/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-9
Matrix: Air

Method: 8321A - PFOA and PFOS (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	78	D	50 - 200	03/05/18 14:00	03/12/18 08:30	5

Client Sample ID: C-2817,2818,2820 R3 M0010 BH
Date Collected: 02/26/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-10
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	3.25		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:24	1
<i>Surrogate</i>									
13C3 HFPO-DA	69		50 - 200				03/05/18 04:38	03/09/18 13:24	1

Client Sample ID: C-2819 R3 M0010 IMP COND
Date Collected: 02/26/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-11
Matrix: Air

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0164		0.00250	0.000128	ug/Sample		03/11/18 10:52	03/12/18 09:35	1
<i>Surrogate</i>									
13C3 HFPO-DA	86		50 - 200				03/11/18 10:52	03/12/18 09:35	1

Client Sample ID: C-2821 R3 M0010 XAD-2
Date Collected: 02/26/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-12
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:27	1
<i>Surrogate</i>									
13C3 HFPO-DA	76		50 - 200				03/05/18 04:38	03/09/18 13:27	1

Client Sample ID: C-2822,2823 R QC M0010 FH BT
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-13
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.128		0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:21	1
<i>Surrogate</i>									
13C3 HFPO-DA	75		50 - 200				03/05/18 14:00	03/09/18 12:21	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2824,2825,2827 R QC M0010 BH BT
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-14
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.849		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 13:30	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	73		50 - 200				03/05/18 04:38	03/09/18 13:30	1

Client Sample ID: C-2826 R QC M0010 IMP COND BT
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-15
Matrix: Air

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0157		0.00250	0.000128	ug/Sample	D	03/11/18 10:52	03/12/18 09:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	58		50 - 200				03/11/18 10:52	03/12/18 09:38	1

Client Sample ID: C-2828 R QC M0010 XAD-2 BT
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-16
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 13:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	72		50 - 200				03/05/18 04:38	03/09/18 13:33	1

Client Sample ID: C-2829 R QC M0010 DI WATER RB
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-17
Matrix: Air

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.00250	0.000128	ug/Sample	D	03/11/18 10:52	03/12/18 09:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	95		50 - 200				03/11/18 10:52	03/12/18 09:42	1

Client Sample ID: C-2830 R QC M0010 MEOH WITH 5% NH4OH RB
Date Collected: 02/27/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10862-18
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample	D	03/05/18 14:00	03/09/18 12:25	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC
The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2830 R QC M0010 MEOH WITH 5% NH4OH

Lab Sample ID: 140-10862-18

RB

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	74		50 - 200	03/05/18 14:00	03/09/18 12:25	1

Client Sample ID: C-2831 R QC M0010 XAD-2 RB

Lab Sample ID: 140-10862-19

Date Collected: 03/02/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 13:40	1
Surrogate									
13C3 HFPO-DA									

Client Sample ID: C-2832 R QC M0010 MEOH WITH 5% NH4OH

Lab Sample ID: 140-10862-20

TB

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample	D	03/05/18 14:00	03/09/18 12:28	1
Surrogate									
13C3 HFPO-DA									

Client Sample ID: C-2833 R QC M0010 XAD-2 TB

Lab Sample ID: 140-10862-21

Date Collected: 03/02/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 13:43	1
Surrogate									
13C3 HFPO-DA									

Client Sample ID: C-2834,2835,2836 R QC M0010 PROOF

Lab Sample ID: 140-10862-22

BLANK

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample	D	03/05/18 04:38	03/09/18 13:46	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2834,2835,2836 R QC M0010 PROOF

Lab Sample ID: 140-10862-22

BLANK

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	03/05/18 04:38	03/09/18 13:46	1

Client Sample ID: A-6414 MEDIA CHECK XAD

Lab Sample ID: 140-10862-23

Date Collected: 02/26/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 13:50	1
13C3 HFPO-DA	56		50 - 200				03/05/18 04:38	03/09/18 13:50	1

Client Sample ID: A-6415 MEDIA CHECK FILTER

Lab Sample ID: 140-10862-24

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample	D	03/05/18 14:00	03/09/18 12:31	1
13C3 HFPO-DA	76		50 - 200				03/05/18 14:00	03/09/18 12:31	1

TestAmerica Knoxville

Default Detection Limits

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Method: 8321A - HFPO-DA

Prep: None

Analyte	RL	MDL	Units	Method
HFPO-DA	0.00250	0.00128	ug/Sample	8321A

Method: 8321A - PFOA and PFOS

Prep: None

Analyte	RL	MDL	Units	Method
HFPO-DA	0.0250	0.0250	ug/Sample	8321A
HFPO-DA	0.100	0.100	ug/Sample	8321A

TestAmerica Knoxville

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Method: 8321A - HFPO-DA

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA (50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
140-10862-3	C-2805 R1 M0010 IMP COND	86
140-10862-7	C-2812 R2 M0010 IMP COND	91
140-10862-11	C-2819 R3 M0010 IMP COND	86
140-10862-15	C-2826 R QC M0010 IMP COND	58
140-10862-17	C-2829 R QC M0010 DI WATEF	95
LCS 280-406765/2-A	Lab Control Sample	90
LCSD 280-406765/14-A	Lab Control Sample Dup	92
LLCS 280-406765/15-A	Lab Control Sample	87
MB 280-406765/1-A	Method Blank	94

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 8321A - PFOA and PFOS

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA (50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
140-10862-1	C-2801,2802 R1 M0010 FH	79
140-10862-2	C-2803,2804,2806 R1 M0010 BI	68
140-10862-4	C-2807 R1 M0010 XAD-2	73
140-10862-5	C-2808,2809 R2 M0010 FH	71
140-10862-5	C-2808,2809 R2 M0010 FH	81 D
140-10862-6	C-2810,2811,2813 R2 M0010 BI	69
140-10862-8	C-2814 R2 M0010 XAD-2	54
140-10862-9	C-2815,2816 R3 M0010 FH	76
140-10862-9	C-2815,2816 R3 M0010 FH	78 D
140-10862-10	C-2817,2818,2820 R3 M0010 BI	69
140-10862-12	C-2821 R3 M0010 XAD-2	76
140-10862-13	C-2822,2823 R QC M0010 FH E	75
140-10862-14	C-2824,2825,2827 R QC M001C	73
140-10862-16	C-2828 R QC M0010 XAD-2 BT	72
140-10862-18	C-2830 R QC M0010 MEOH WI	74
140-10862-19	C-2831 R QC M0010 XAD-2 RB	71
140-10862-20	C-2832 R QC M0010 MEOH WI	75
140-10862-21	C-2833 R QC M0010 XAD-2 TB	75
140-10862-22	C-2834,2835,2836 R QC M001C	85
140-10862-23	A-6414 MEDIA CHECK XAD	56
140-10862-24	A-6415 MEDIA CHECK FILTER	76
DLCK 280-404345/13	Lab Control Sample	104
LCS 280-406763/2-A	Lab Control Sample	77
LCS 280-406764/2-A	Lab Control Sample	72
MB 280-406763/1-A	Method Blank	69
MB 280-406764/1-A	Method Blank	64

Surrogate Legend

HFPODA = 13C3 HFPO-DA

TestAmerica Knoxville

QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Method: 8321A - HFPO-DA

Lab Sample ID: MB 280-406765/1-A

Matrix: Air

Analysis Batch: 407567

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HFPO-DA	ND		0.00250	0.000128	ug/Sample		03/11/18 10:52	03/12/18 09:16	1
Surrogate									
13C3 HFPO-DA	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac	1
	94				50 - 200				

Lab Sample ID: LCS 280-406765/2-A

Matrix: Air

Analysis Batch: 407567

Analyte		Spike	LCS	LCS	D	% Rec.
		Added	Result	Qualifier		
HFPO-DA		0.0500	0.05486		ug/Sample	110
LCS						
Surrogate	% Recovery	Qualifier	Limits			
13C3 HFPO-DA	90		50 - 200			

Lab Sample ID: LCSD 280-406765/14-A

Matrix: Air

Analysis Batch: 407567

Analyte		Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HFPO-DA		0.0500	0.05420		ug/Sample		108	50 - 150	1	35
Surrogate		LCSD %Recovery	LCSD Qualifier	Limits						
13C3 HFPO-DA		92		50 - 200						

Lab Sample ID: LLCS 280-406765/15-A

Matrix: Air

Analysis Batch: 407567

Analyte	Spike	LLCS	LLCS	Unit	D	% Rec.	% Rec.
	Added	Result	Qualifier				
HFPO-DA	0.00500	0.004384		ug/Sample	88	50 - 150	
LLCS LLCS							
Surrogate	% Recovery	Qualifier	Limits				
13C3 HFPO-DA	87		50 - 200				

Method: 8321A - PFOA and PFOS

Lab Sample ID: DLCK 280-404345/13

Matrix: Air

Analysis Batch: 404345

Analyte	Spike	DLCK	DLCK	D	% Rec.	
	Added	Result	Qualifier			
HFPO-DA	0.250	0.2255		ug/L	90	70 - 130
<i>Surrogate</i>						
¹³ C3 HFPO-DA	% Recovery	DLCK Qualifier	DLCK Limits			
	104		50 - 200			

TestAmerica Knoxville

QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Method: 8321A - PFOA and PFOS (Continued)

Lab Sample ID: MB 280-406763/1-A

Matrix: Air

Analysis Batch: 407389

Analyte	MB	MB				D	Prepared	Analyzed	Dil Fac
	Result	Qualifier	RL	MDL	Unit				
HFPO-DA	ND		0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:05	1
Surrogate									
13C3 HFPO-DA	MB	MB				D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier	Limits						
	69		50 - 200				03/05/18 14:00	03/09/18 12:05	1

Lab Sample ID: LCS 280-406763/2-A

Matrix: Air

Analysis Batch: 407389

Analyte	Spike	LCS	LCS				D	%Rec	Limits
	Added	Result	Qualifier	Unit	ug/Sample				
HFPO-DA	0.500	0.4835						97	50 - 150
Surrogate									
13C3 HFPO-DA	LCS	LCS				D	%Rec	Limits	
	%Recovery	Qualifier	Limits						
	77		50 - 200						

Lab Sample ID: MB 280-406764/1-A

Matrix: Air

Analysis Batch: 407390

Analyte	MB	MB				D	Prepared	Analyzed	Dil Fac
	Result	Qualifier	RL	MDL	Unit				
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:04	1
Surrogate									
13C3 HFPO-DA	MB	MB				D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier	Limits						
	64		50 - 200				03/05/18 04:38	03/09/18 13:04	1

Lab Sample ID: LCS 280-406764/2-A

Matrix: Air

Analysis Batch: 407390

Analyte	Spike	LCS	LCS				D	%Rec	Limits
	Added	Result	Qualifier	Unit	ug/Sample				
HFPO-DA	4.00	3.498						87	50 - 150
Surrogate									
13C3 HFPO-DA	LCS	LCS				D	%Rec	Limits	
	%Recovery	Qualifier	Limits						
	72		50 - 200						

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406763

% Rec.

Prepared Analyzed Dil Fac

03/05/18 14:00 03/09/18 12:05 1

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 406764

Prepared Analyzed Dil Fac

03/05/18 04:38 03/09/18 13:04 1

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406764

% Rec.

Prepared Analyzed Dil Fac

03/05/18 04:38 03/09/18 13:04 1

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2801,2802 R1 M0010 FH

Lab Sample ID: 140-10862-1

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	150 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:12	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2803,2804,2806 R1 M0010 BH

Lab Sample ID: 140-10862-2

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:10	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2805 R1 M0010 IMP COND

Lab Sample ID: 140-10862-3

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.05 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:29	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2807 R1 M0010 XAD-2

Lab Sample ID: 140-10862-4

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:14	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2808,2809 R2 M0010 FH

Lab Sample ID: 140-10862-5

Date Collected: 02/27/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:15	AGCM	TAL DEN
Instrument ID: LC_LCMS7										
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		5			407565	03/12/18 08:27	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2810,2811,2813 R2 M0010 BH

Lab Sample ID: 140-10862-6

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:17	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2812 R2 M0010 IMP COND

Lab Sample ID: 140-10862-7

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.05 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:32	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2814 R2 M0010 XAD-2

Lab Sample ID: 140-10862-8

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:20	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2815,2816 R3 M0010 FH

Lab Sample ID: 140-10862-9

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	250 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:18	AGCM	TAL DEN
Instrument ID: LC_LCMS7										
Total/NA	Prep	None			1 Sample	250 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		5			407565	03/12/18 08:30	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2817,2818,2820 R3 M0010 BH

Lab Sample ID: 140-10862-10

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:24	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2819 R3 M0010 IMP COND

Lab Sample ID: 140-10862-11

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:35	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2821 R3 M0010 XAD-2

Lab Sample ID: 140-10862-12

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:27	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2822,2823 R QC M0010 FH BT

Lab Sample ID: 140-10862-13

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:21	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2824,2825,2827 R QC M0010 BH BT

Lab Sample ID: 140-10862-14

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:30	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2826 R QC M0010 IMP COND BT

Lab Sample ID: 140-10862-15

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:38	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2828 R QC M0010 XAD-2 BT

Lab Sample ID: 140-10862-16

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:33	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2829 R QC M0010 DI WATER RB

Lab Sample ID: 140-10862-17

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:42	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2830 R QC M0010 MEOH WITH 5% NH4OH

Lab Sample ID: 140-10862-18

RB

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:25	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2831 R QC M0010 XAD-2 RB

Lab Sample ID: 140-10862-19

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:40	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2832 R QC M0010 MEOH WITH 5% NH4OH

Lab Sample ID: 140-10862-20

Matrix: Air

TB

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:28	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: C-2833 R QC M0010 XAD-2 TB

Lab Sample ID: 140-10862-21

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:43	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: C-2834,2835,2836 R QC M0010 PROOF

Lab Sample ID: 140-10862-22

BLANK

Matrix: Air

Date Collected: 02/27/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:46	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: A-6414 MEDIA CHECK XAD

Lab Sample ID: 140-10862-23

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:50	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: A-6415 MEDIA CHECK FILTER

Lab Sample ID: 140-10862-24

Matrix: Air

Date Collected: 02/26/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:31	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406763/1-A

Matrix: Air

Date Collected: N/A

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:05	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406764/1-A

Matrix: Air

Date Collected: N/A
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:04	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406765/1-A

Matrix: Air

Date Collected: N/A
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:16	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: DLCK 280-404345/13

Matrix: Air

Date Collected: N/A
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			404345	02/08/18 13:38	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406763/2-A

Matrix: Air

Date Collected: N/A
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:08	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406764/2-A

Matrix: Air

Date Collected: N/A
Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:07	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406765/2-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:19	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 280-406765/14-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:22	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LLCS 280-406765/15-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:25	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Knoxville

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Laboratory: TestAmerica Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		N/A	
ANAB	DoD ELAP		L2311	02-13-19
Arkansas DEQ	State Program	6	88-0688	06-16-18
California	State Program	9	2423	06-30-18
Colorado	State Program	8	TN00009	02-28-19
Connecticut	State Program	1	PH-0223	09-30-19
Florida	NELAP	4	E87177	06-30-18
Georgia	State Program	4	906	04-13-20
Hawaii	State Program	9	N/A	04-13-18
Kansas	NELAP	7	E-10349	10-31-18
Kentucky (DW)	State Program	4	90101	12-31-18
Louisiana	NELAP	6	83979	06-30-18
Louisiana (DW)	NELAP	6	LA160005	12-31-18
Maryland	State Program	3	277	03-31-19
Michigan	State Program	5	9933	04-13-20
Nevada	State Program	9	TN00009	07-31-18
New Jersey	NELAP	2	TN001	06-30-18
New York	NELAP	2	10781	03-31-18
North Carolina (DW)	State Program	4	21705	07-31-18
North Carolina (WV/SW)	State Program	4	64	12-31-18
Ohio VAP	State Program	5	CL0059	11-22-18
Oklahoma	State Program	6	9415	08-31-18
Oregon	NELAP	10	TNI0189	01-01-19
Pennsylvania	NELAP	3	68-00576	12-31-18
Tennessee	State Program	4	2014	04-13-20
Texas	NELAP	6	T104704380-16-9	08-31-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-16-00262	08-20-19
Utah	NELAP	8	TN00009	07-31-18
Virginia	NELAP	3	460176	09-14-18
Washington	State Program	10	C593	01-19-19
West Virginia (DW)	State Program	3	9955C	12-31-18
West Virginia DEP	State Program	3	345	04-30-18
Wisconsin	State Program	5	998044300	08-31-18

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	04-05-18
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-18
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-18
Florida	NELAP	4	E87667	06-30-18
Georgia	State Program	4	N/A	01-08-18 *
Illinois	NELAP	5	200017	04-30-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Knoxville

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: South VE Emissions Test

TestAmerica Job ID: 140-10862-1

Laboratory: TestAmerica Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-18
Louisiana	NELAP	6	02096	06-30-18
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-18
New Hampshire	NELAP	1	205310	04-28-18
New Jersey	NELAP	2	CO004	06-30-18
New York	NELAP	2	11964	04-01-18
North Carolina (WV/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-18
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-18
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-18
USDA	Federal		P330-16-00397	12-15-19
Utah	NELAP	8	CO00026	07-31-18
Virginia	NELAP	3	460232	06-14-18
Washington	State Program	10	C583	08-03-18
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-18
Wyoming (UST)	A2LA	8	2907.01	10-31-19

TestAmerica Knoxville

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Instrument ID: LC_LCMS7

Analysis Batch Number: 404345

Lab Sample ID: STD001 280-404345/3 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:05

Lab File ID: hfpo718B08034.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Assign Peak	meyera	02/08/18 15:19

Lab Sample ID: STD002 280-404345/4 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:08

Lab File ID: hfpo718B08035.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:19

Lab Sample ID: DLCK 280-404345/13

Client Sample ID: _____

Date Analyzed: 02/08/18 13:38

Lab File ID: hfpo718B08044.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 140-10862-1

SDG No.: _____

Instrument ID: LC_LCMS7Analysis Batch Number: 407390Lab Sample ID: 140-10862-21Client Sample ID: C-2833 R QC M0010 XAD-2 TBDate Analyzed: 03/09/18 13:43Lab File ID: hfpo718C09101.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.03	Baseline	meyera	03/12/18 07:22

8321A

8321A_HFPO_Du

HFPO-DA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Matrix: Air Level: Low

GC Column (1): Synergi Hyd ID: _____

Client Sample ID	Lab Sample ID	HFPODA #
C-2805 R1 M0010 IMP COND	140-10862-3	86
C-2812 R2 M0010 IMP COND	140-10862-7	91
C-2819 R3 M0010 IMP COND	140-10862-11	86
C-2826 R QC M0010 IMP COND BT	140-10862-15	58
C-2829 R QC M0010 DI WATER RB	140-10862-17	95
	MB 280-406765/1-A	94
	LCS 280-406765/2-A	90
	LCSD 280-406765/14-A	92
	LLCS 280-406765/15-A	87

HFPODA = 13C3 HFPO-DA

QC LIMITS
50-200

Column to be used to flag recovery values

FORM II 8321A

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12020.d

Lab ID: LCS 280-406765/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LCS CONCENTRATION (ug/Sample)	LCS % REC	QC LIMITS REC	#
HFPO-DA	0.0500	0.05486	110	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12021.d

Lab ID: LCSD 280-406765/14-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LCSD CONCENTRATION (ug/Sample)	LCSD REC	%	QC LIMITS		#
					RPD	RPD	
HFPO-DA	0.0500	0.05420	108	1	35	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12022.d

Lab ID: LLCS 280-406765/15-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LLCS CONCENTRATION (ug/Sample)	LLCS % REC	QC LIMITS REC	#
HFPO-DA	0.00500	0.004384	88	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 140-10862-1
SDG No.:
Lab File ID: hfpo718C12019.d Lab Sample ID: MB 280-406765/1-A
Matrix: Air Date Extracted: 03/11/2018 10:52
Instrument ID: LC_LCMS7 Date Analyzed: 03/12/2018 09:16
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-406765/2-A	hfpo718C120 20.d	03/12/2018 09:19
	LCSD 280-406765/14-A	hfpo718C120 21.d	03/12/2018 09:22
	LLCS 280-406765/15-A	hfpo718C120 22.d	03/12/2018 09:25
C-2805 R1 M0010 IMP COND	140-10862-3	hfpo718C120 23.d	03/12/2018 09:29
C-2812 R2 M0010 IMP COND	140-10862-7	hfpo718C120 24.d	03/12/2018 09:32
C-2819 R3 M0010 IMP COND	140-10862-11	hfpo718C120 25.d	03/12/2018 09:35
C-2826 R QC M0010 IMP COND BT	140-10862-15	hfpo718C120 26.d	03/12/2018 09:38
C-2829 R QC M0010 DI WATER RB	140-10862-17	hfpo718C120 27.d	03/12/2018 09:42

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: C-2805 R1 M0010 IMP COND Lab Sample ID: 140-10862-3

Matrix: Air Lab File ID: hfpo718C12023.d

Analysis Method: 8321A Date Collected: 02/27/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.05 (Sample) Date Analyzed: 03/12/2018 09:29

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.0183	J	0.0500	0.00255

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	86		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12023.d
 Lims ID: 140-10862-A-3-A
 Client ID: C-2805 R1 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:29:01 ALS Bottle#: 22 Worklist Smp#: 23
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-3-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:44

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 645479 8.65 3454
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 645479 10.0 3454
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 14876 0.1827 5.6

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12023.d

Injection Date: 12-Mar-2018 09:29:01

Instrument ID: LC_LCMS7

Lims ID: 140-10862-A-3-A

Lab Sample ID: 280-10862-3

Client ID: C-2805 R1 M0010 IMP COND

Operator ID: JBH

ALS Bottle#: 22 Worklist Smp#: 23

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

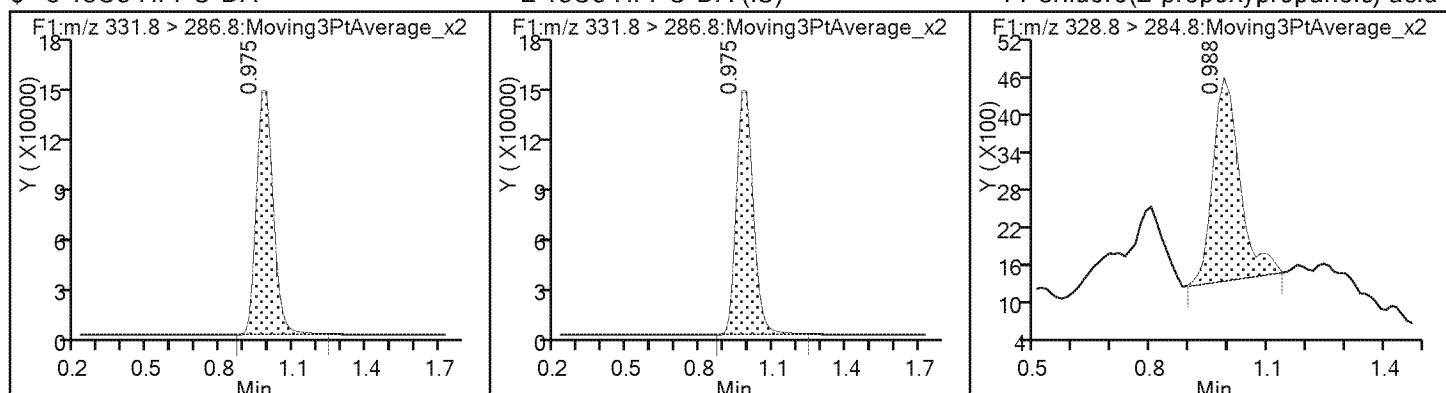
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12023.d
 Lims ID: 140-10862-A-3-A
 Client ID: C-2805 R1 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:29:01 ALS Bottle#: 22 Worklist Smp#: 23
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-3-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:44

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.65	86.46

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: C-2812 R2 M0010 IMP COND Lab Sample ID: 140-10862-7

Matrix: Air Lab File ID: hfpo718C12024.d

Analysis Method: 8321A Date Collected: 02/27/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.05 (Sample) Date Analyzed: 03/12/2018 09:32

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.0413	J	0.0500	0.00255

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	91		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12024.d
 Lims ID: 140-10862-A-7-A
 Client ID: C-2812 R2 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:32:16 ALS Bottle#: 23 Worklist Smp#: 24
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-7-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 677796 9.08 2550
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 677796 10.0 2550
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 32263 0.4135 9.4

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12024.d

Injection Date: 12-Mar-2018 09:32:16

Instrument ID: LC_LCMS7

Lims ID: 140-10862-A-7-A

Lab Sample ID: 280-10862-7

Client ID: C-2812 R2 M0010 IMP COND

Operator ID: JBH

ALS Bottle#: 23 Worklist Smp#: 24

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

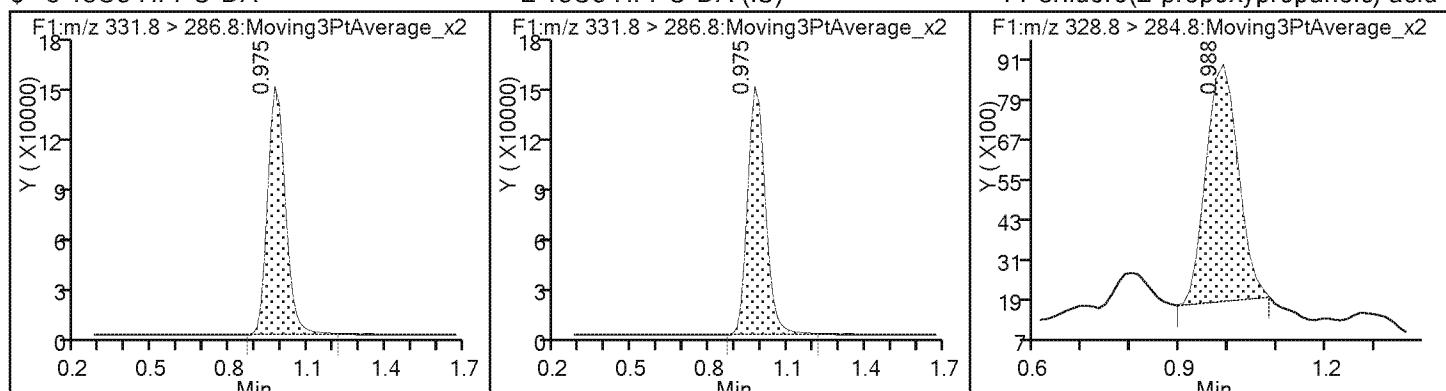
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12024.d
 Lims ID: 140-10862-A-7-A
 Client ID: C-2812 R2 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:32:16 ALS Bottle#: 23 Worklist Smp#: 24
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-7-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:47

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.08	90.78

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: C-2819 R3 M0010 IMP COND Lab Sample ID: 140-10862-11

Matrix: Air Lab File ID: hfpo718C12025.d

Analysis Method: 8321A Date Collected: 02/26/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:35

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.0164		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	86		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12025.d
 Lims ID: 140-10862-A-11-A
 Client ID: C-2819 R3 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:35:31 ALS Bottle#: 24 Worklist Smp#: 25
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-11-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 644570 8.63 3407
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 644570 10.0 3407
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 226661 3.27 89.1

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12025.d

Injection Date: 12-Mar-2018 09:35:31

Instrument ID: LC_LCMS7

Lims ID: 140-10862-A-11-A

Lab Sample ID: 280-10862-11

Client ID: C-2819 R3 M0010 IMP COND

Operator ID: JBH

ALS Bottle#: 24 Worklist Smp#: 25

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

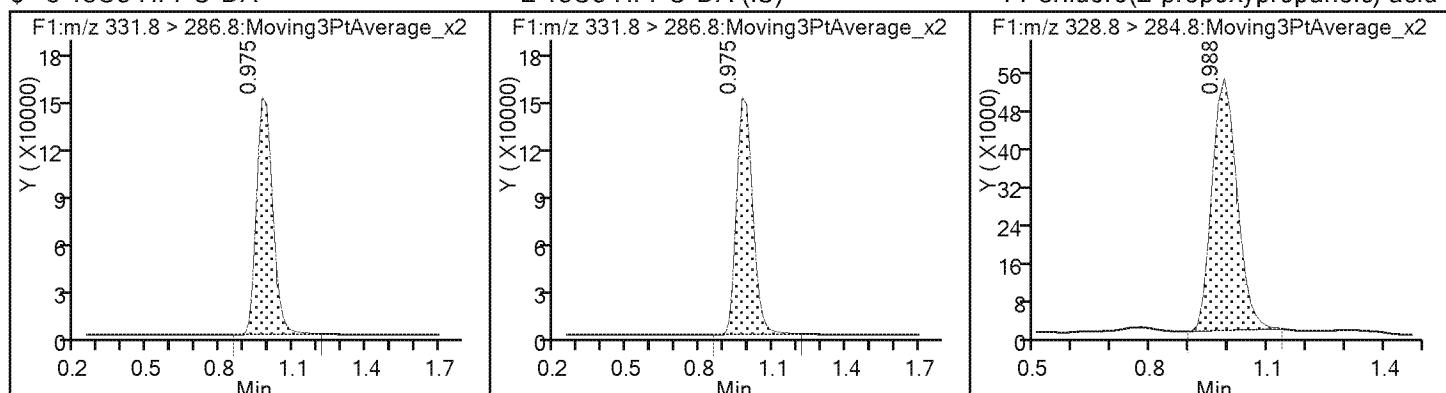
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12025.d
 Lims ID: 140-10862-A-11-A
 Client ID: C-2819 R3 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:35:31 ALS Bottle#: 24 Worklist Smp#: 25
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-11-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.63	86.33

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: C-2826 R QC M0010 IMP COND BT Lab Sample ID: 140-10862-15

Matrix: Air Lab File ID: hfpo718C12026.d

Analysis Method: 8321A Date Collected: 02/27/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:38

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.0157		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	58		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12026.d
 Lims ID: 140-10862-A-15-A
 Client ID: C-2826 R QC M0010 IMP COND BT
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:38:47 ALS Bottle#: 25 Worklist Smp#: 26
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 431951 5.79 2123
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 431951 10.0 2123
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 146054 3.14 49.9

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12026.d

Injection Date: 12-Mar-2018 09:38:47

Instrument ID: LC_LCMS7

Lims ID: 140-10862-A-15-A

Lab Sample ID: 280-10862-15

Client ID: C-2826 R QC M0010 IMP COND BT

Operator ID: JBH

ALS Bottle#: 25 Worklist Smp#: 26

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

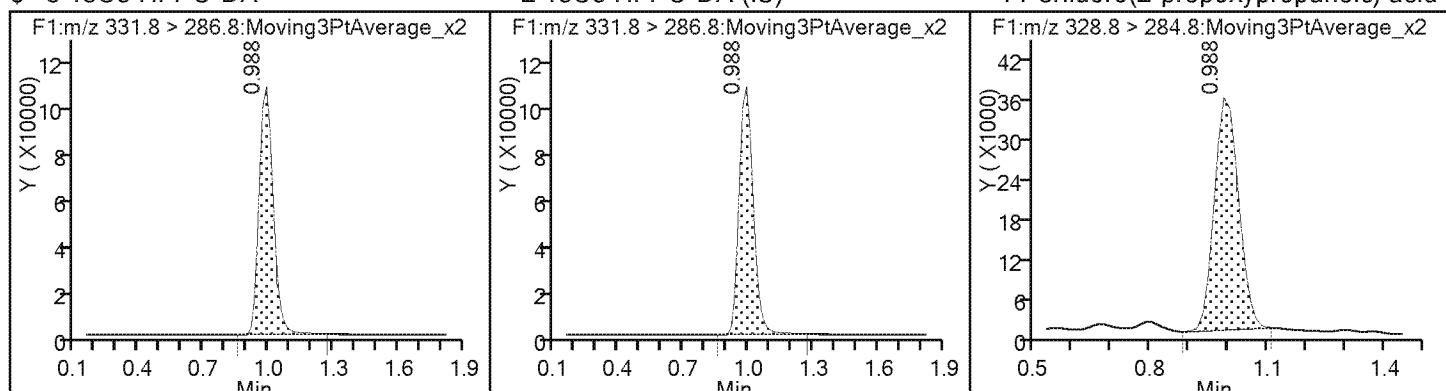
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12026.d
 Lims ID: 140-10862-A-15-A
 Client ID: C-2826 R QC M0010 IMP COND BT
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:38:47 ALS Bottle#: 25 Worklist Smp#: 26
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	5.79	57.86

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: C-2829 R QC M0010 DI WATER RB Lab Sample ID: 140-10862-17

Matrix: Air Lab File ID: hfpo718C12027.d

Analysis Method: 8321A Date Collected: 02/27/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:42

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	ND		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	95		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12027.d
 Lims ID: 140-10862-A-17-A
 Client ID: C-2829 R QC M0010 DI WATER RB
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:42:02 ALS Bottle#: 26 Worklist Smp#: 27
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-17-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:52:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 711492 9.53 3452
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 711492 10.0 3452

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12027.d

Injection Date: 12-Mar-2018 09:42:02

Instrument ID: LC_LCMS7

Lims ID: 140-10862-A-17-A

Lab Sample ID: 280-10862-17

Client ID: C-2829 R QC M0010 DI WATER RB

Operator ID: JBH

ALS Bottle#: 26 Worklist Smp#: 27

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

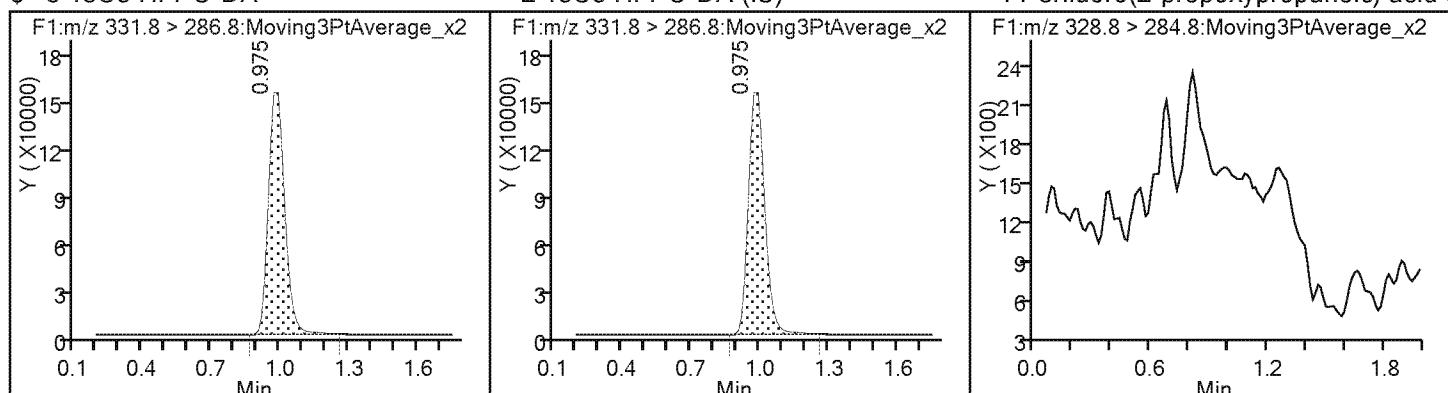
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12027.d
 Lims ID: 140-10862-A-17-A
 Client ID: C-2829 R QC M0010 DI WATER RB
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:42:02 ALS Bottle#: 26 Worklist Smp#: 27
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10862-A-17-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:52:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.53	95.30

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 140-10862-1 Analy Batch No.: 404345
SDG No.: _____
Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N
Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	RT WINDOW	AVG RT
HFPO-DA	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	0.556 - 1.556	1.056
13C3 HFPO-DA	1.042	1.042	1.042	1.042	1.042	1.042	1.042	1.056	1.056	0.545 - 1.545	1.045

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	75771 75244 71284	75964 75940	72010 75039	77000 73687	Ave		74659.8778				2.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 140-10862-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
HFPO-DA	1.1630 1.1128	1.1250 1.0911	1.0756 1.0665	1.0527 1.0507	1.1211	Lin1	0.0361	1.0638							1.0000		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C3 HFPO-DA	Ave	757714 759397	759642 750388	720099 736869	769995 712841	752444	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 140-10862-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HFPO-DA	13CP ODA	Lin1	22031 845082	42730 2046873	77455 3929397	162117 7489478	421775	0.250 10.0	0.500 25.0	1.00 50.0	2.00 100	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 08-Feb-2018 13:05:38 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:13 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 757714 10.0 1562

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 757714 10.1 1562
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 22031 0.2394 4.4 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d

Injection Date: 08-Feb-2018 13:05:38

Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

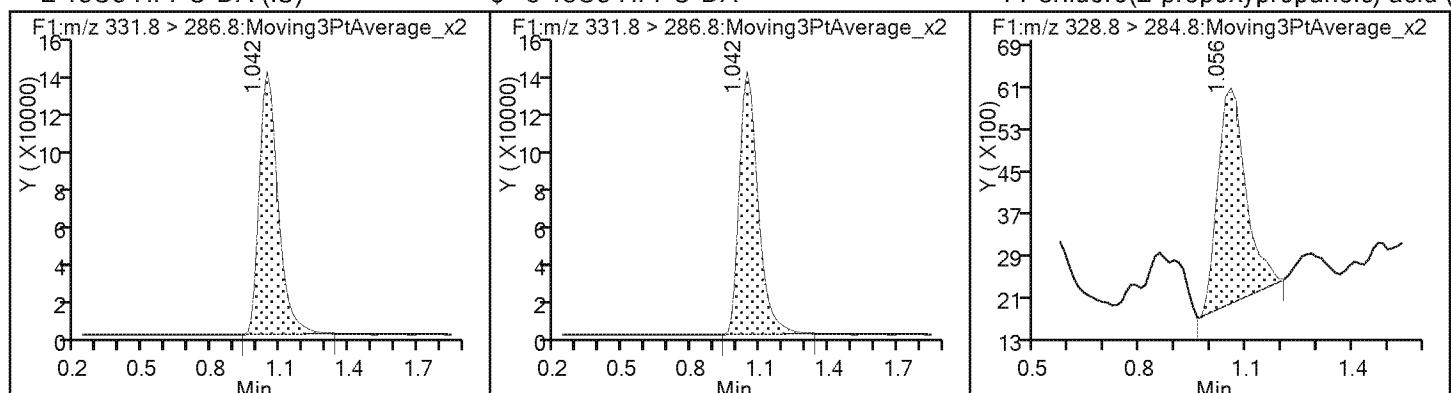
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid (M)



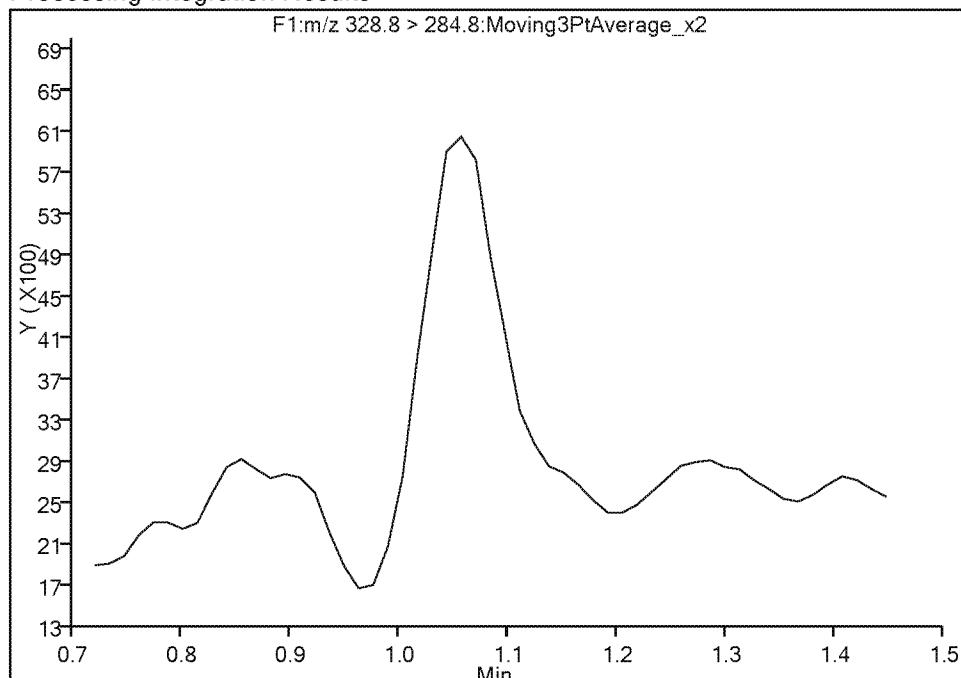
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d
 Injection Date: 08-Feb-2018 13:05:38 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6
 Signal: 1

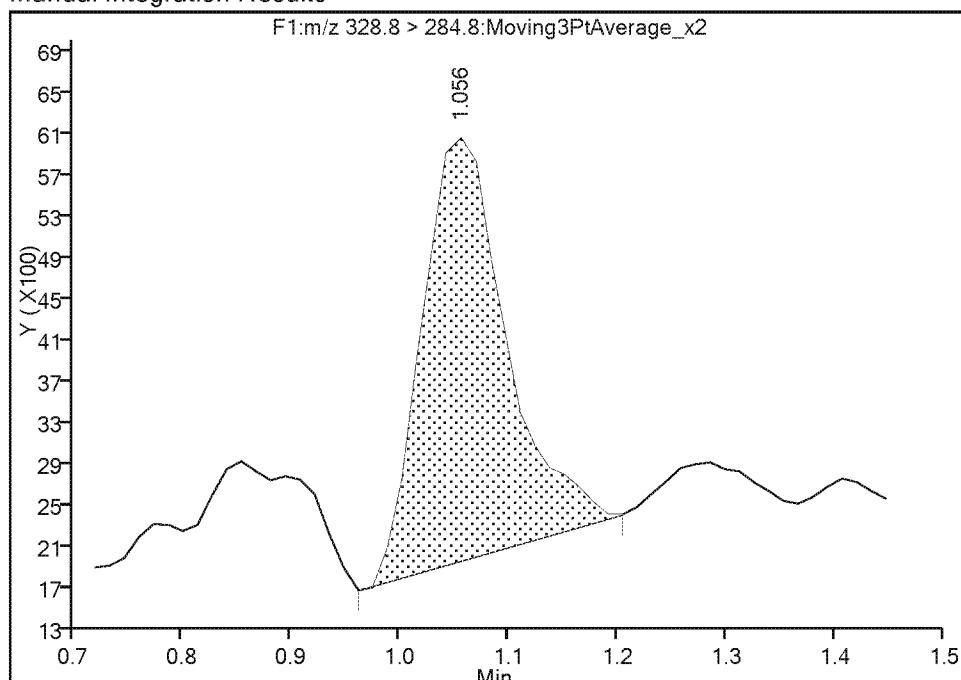
Not Detected
 Expected RT: 1.06

Processing Integration Results



RT: 1.06
 Area: 22031
 Amount: 0.239356
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 08-Feb-2018 15:19:01

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 08-Feb-2018 13:08:52 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.2 1267
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.0 1267
 1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 1.056 1.056 0.0 1.000 42730 0.4948 6.5 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-2_00033 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d

Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4

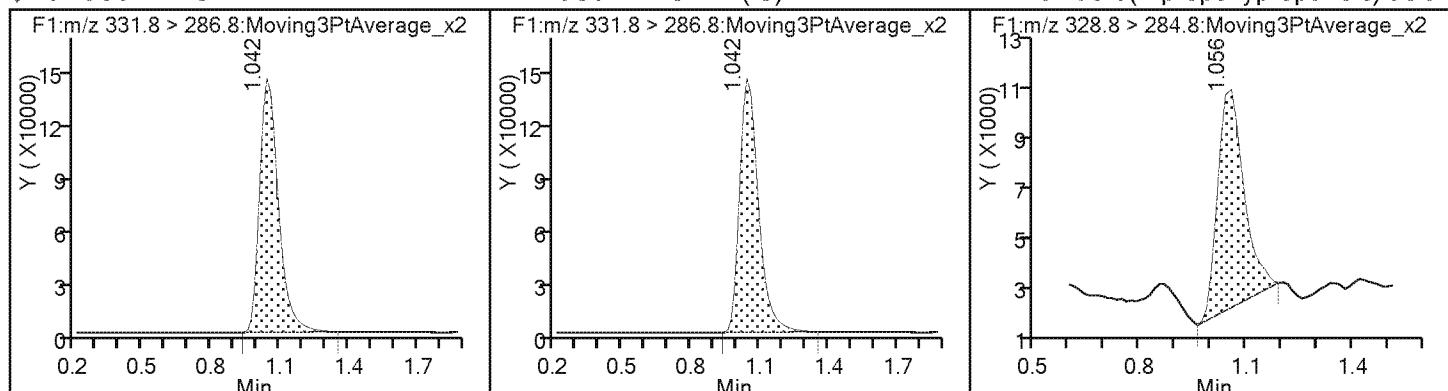
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

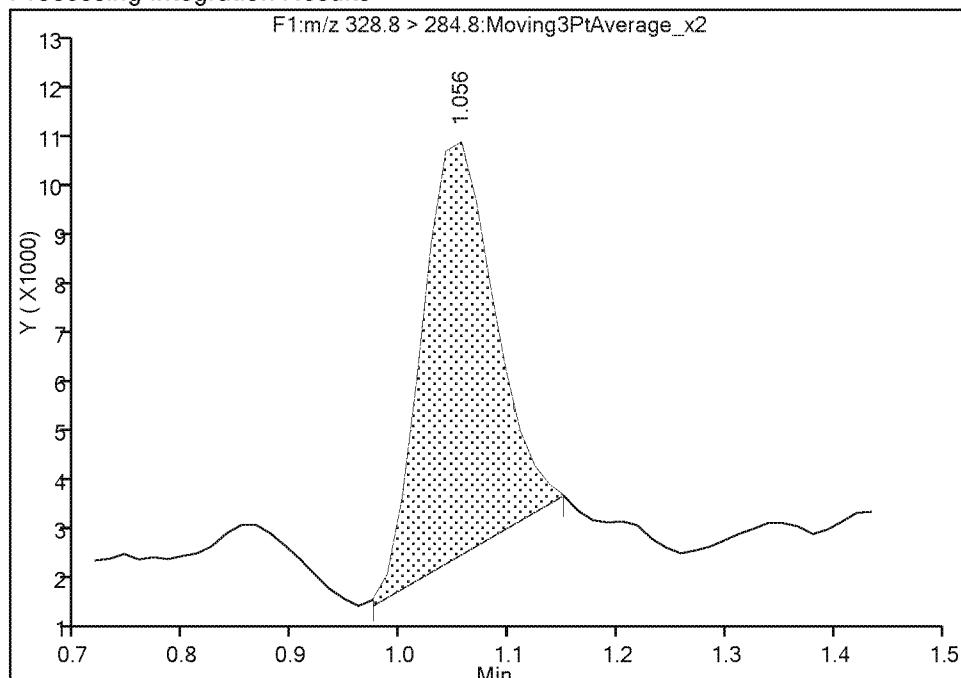
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d
 Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7
 Lims ID: std002
 Client ID:
 Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

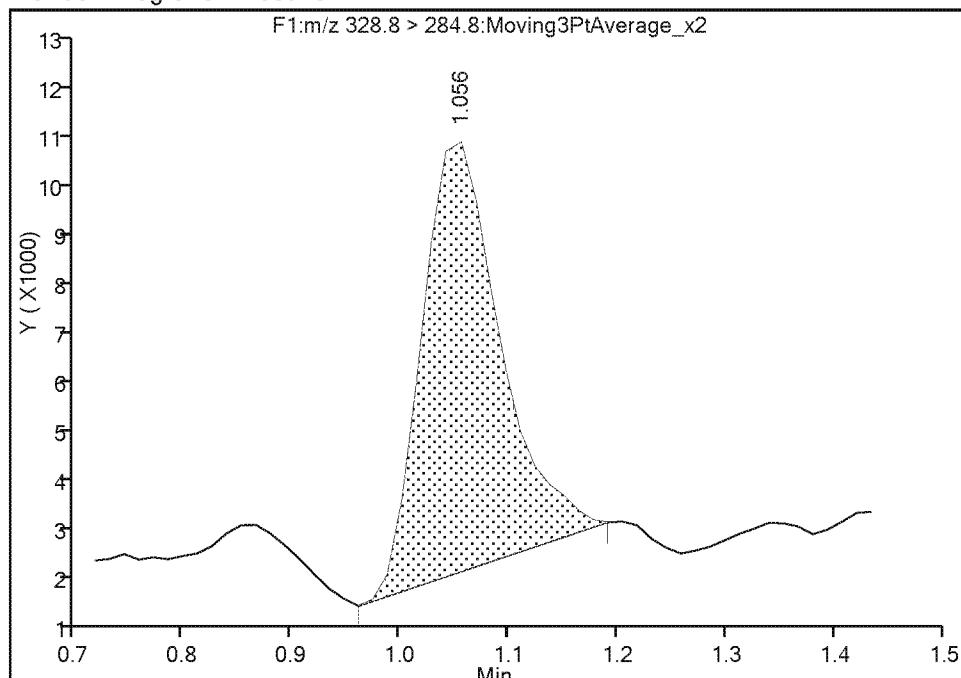
Processing Integration Results

RT: 1.06
 Area: 38092
 Amount: 0.452274
 Amount Units: ug/l



Manual Integration Results

RT: 1.06
 Area: 42730
 Amount: 0.494804
 Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:12

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 08-Feb-2018 13:12:06 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 720099 10.0 956

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 720099 9.65 956

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 77455 0.9771 10.6

Reagents:

HFPO_CAL-3_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08036.d

Injection Date: 08-Feb-2018 13:12:06

Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

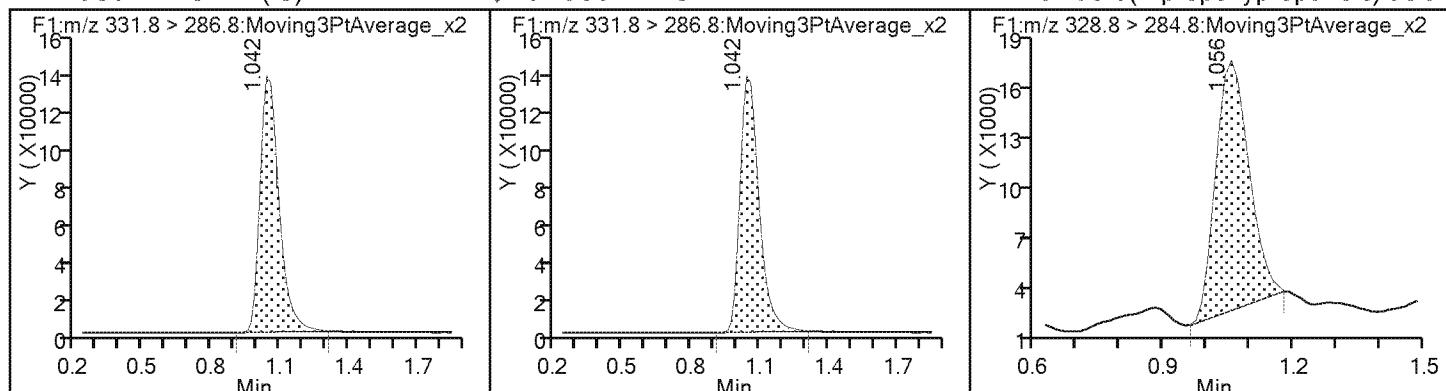
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 08-Feb-2018 13:15:21 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.3 1154
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.0 1154
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 162117 1.95 26.1

Reagents:

HFPO_CAL-4_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08037.d

Injection Date: 08-Feb-2018 13:15:21

Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH

ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

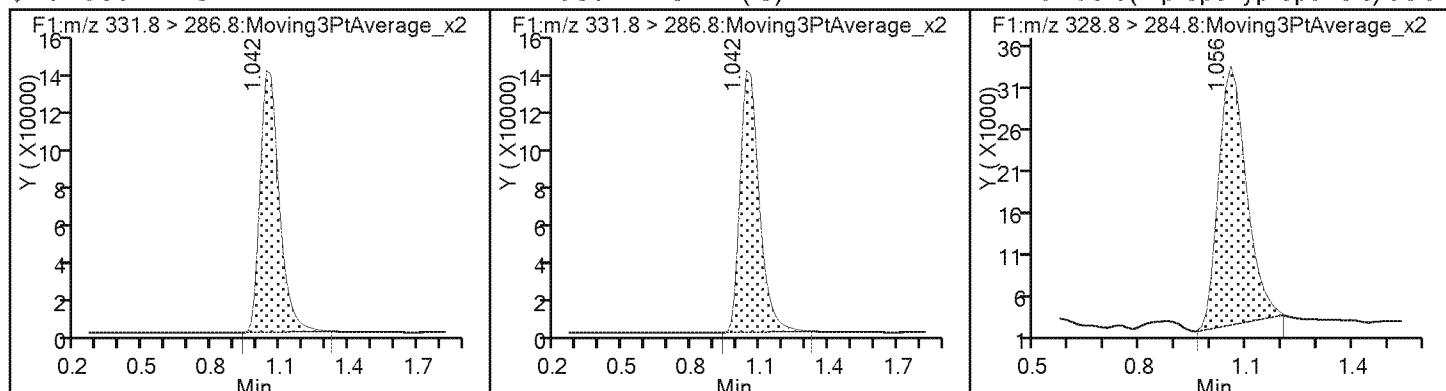
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 08-Feb-2018 13:18:35 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 752444 10.0 1072

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 752444 10.1 1072

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 421775 5.24 66.0

Reagents:

HFPO_CAL-5_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08038.d

Injection Date: 08-Feb-2018 13:18:35 Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH

ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

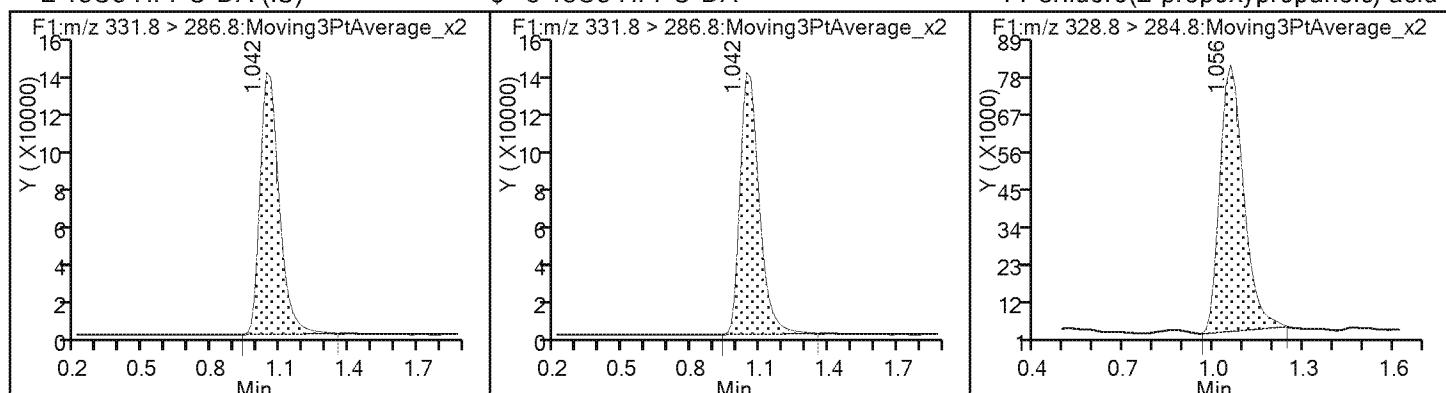
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 08-Feb-2018 13:21:49 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.2 1193
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.0 1193
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 845082 10.4 146

Reagents:

HFPO_CAL-6_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08039.d

Injection Date: 08-Feb-2018 13:21:49

Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

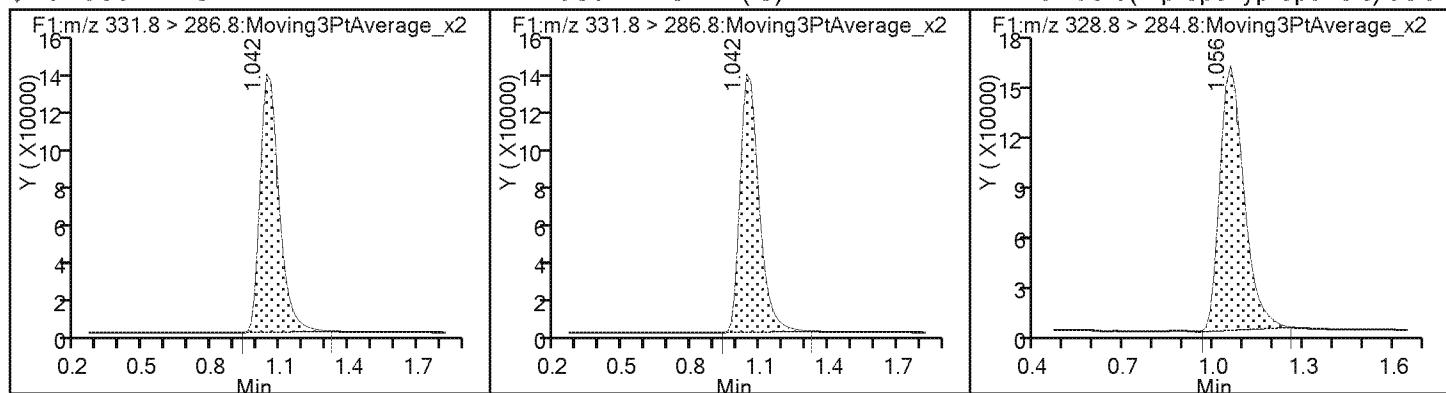
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 08-Feb-2018 13:25:03 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 750388 10.0 1247
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 750388 10.1 1247
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 2046873 25.6 246

Reagents:

HFPO_CAL-7_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08040.d

Injection Date: 08-Feb-2018 13:25:03

Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

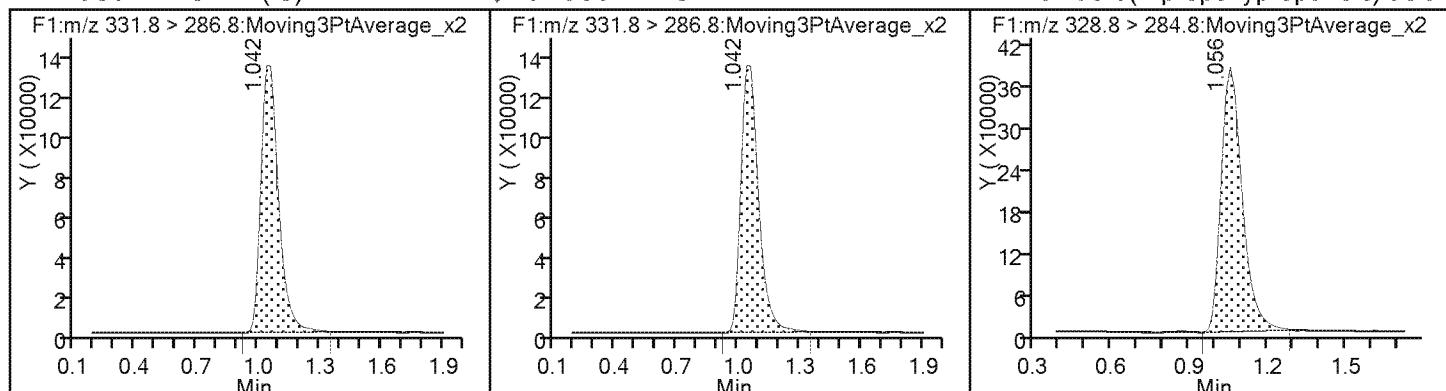
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 08-Feb-2018 13:28:18 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 9.87 1055
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 1.000 736869 10.0 1055
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 3929397 50.1 416

Reagents:

HFPO_CAL-8_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08041.d

Injection Date: 08-Feb-2018 13:28:18

Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

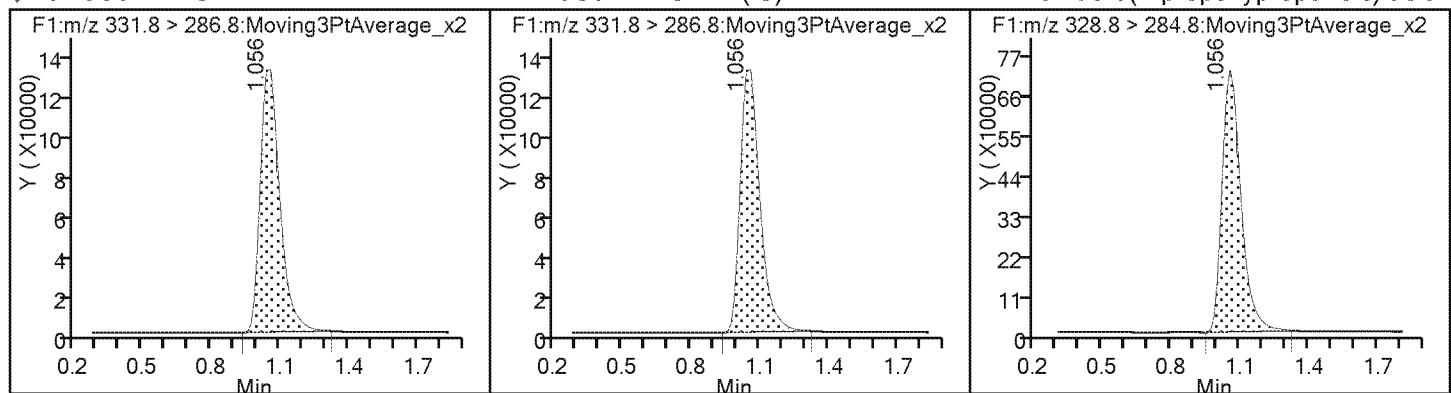
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Lims ID: std009
 Client ID:
 Sample Type: IC Calib Level: 9
 Inject. Date: 08-Feb-2018 13:31:32 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L9
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 712841 10.0 1141
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 712841 9.55 1141
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 7489478 98.7 561

Reagents:

HFPO_CAL-9_00001 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08042.d

Injection Date: 08-Feb-2018 13:31:32 Instrument ID: LC_LCMS7

Lims ID: std009

Client ID:

Operator ID: JBH

ALS Bottle#: 10 Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

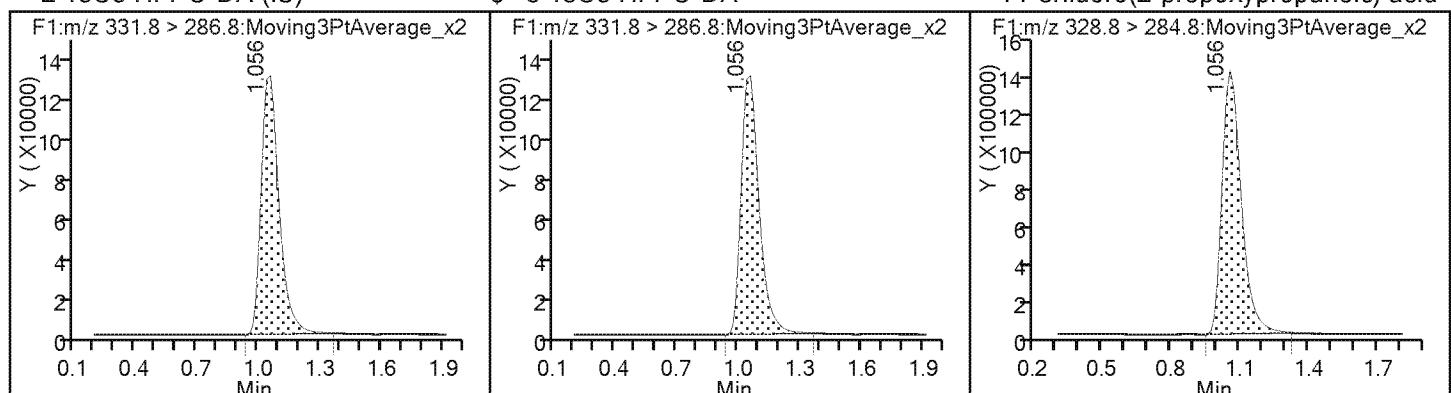
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Lab Sample ID: CCV 280-407567/18

Calibration Date: 03/12/2018 09:12

Instrument ID: LC LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C12018.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		0.9658		9.04	10.0	-9.6	20.0
13C3 HFPO-DA	Ave	74660	55461		7.43	10.0	-25.7	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12018.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2018 09:12:45 ALS Bottle#: 4 Worklist Smp#: 18
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 554608 7.43 2070
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 1.000 554608 10.0 2070
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.042 1.056 -0.014 1.000 535617 9.04 147

Reagents:

HFPO_CAL-6_00083 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12018.d

Injection Date: 12-Mar-2018 09:12:45 Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 18

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

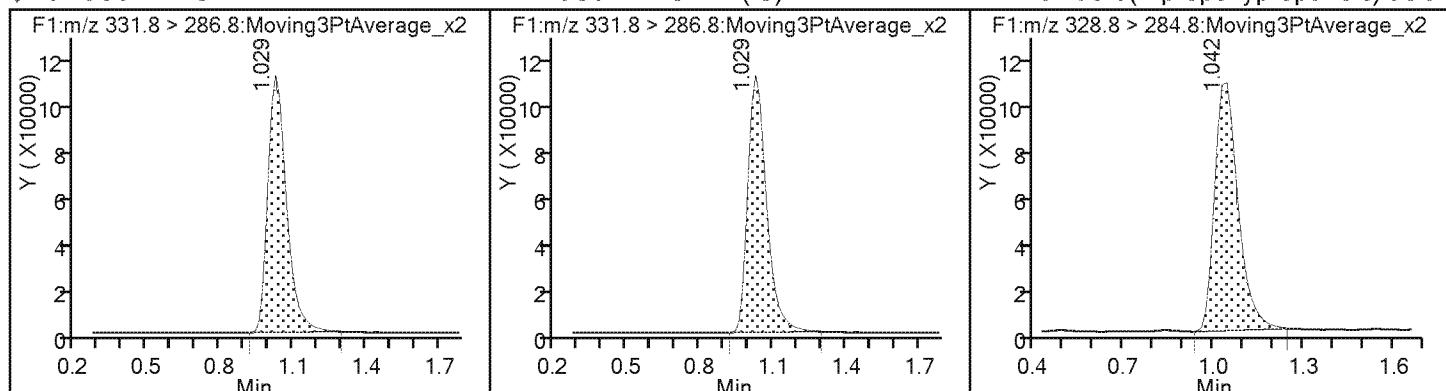
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Lab Sample ID: CCV 280-407567/28

Calibration Date: 03/12/2018 09:45

Instrument ID: LC LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C12028.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.105		5.16	5.00	3.2	20.0
13C3 HFPO-DA	Ave	74660	55461		7.43	10.0	-25.7	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12028.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2018 09:45:17 ALS Bottle#: 3 Worklist Smp#: 28
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:52:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 554610 7.43 1522
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 1.000 554610 10.0 1522
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 306348 5.16 91.8

Reagents:

HFPO_CAL-5_00083 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfp0718C12028.d

Injection Date: 12-Mar-2018 09:45:17 Instrument ID: LC_LCMS7

Lims ID: CCV L5

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 28

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

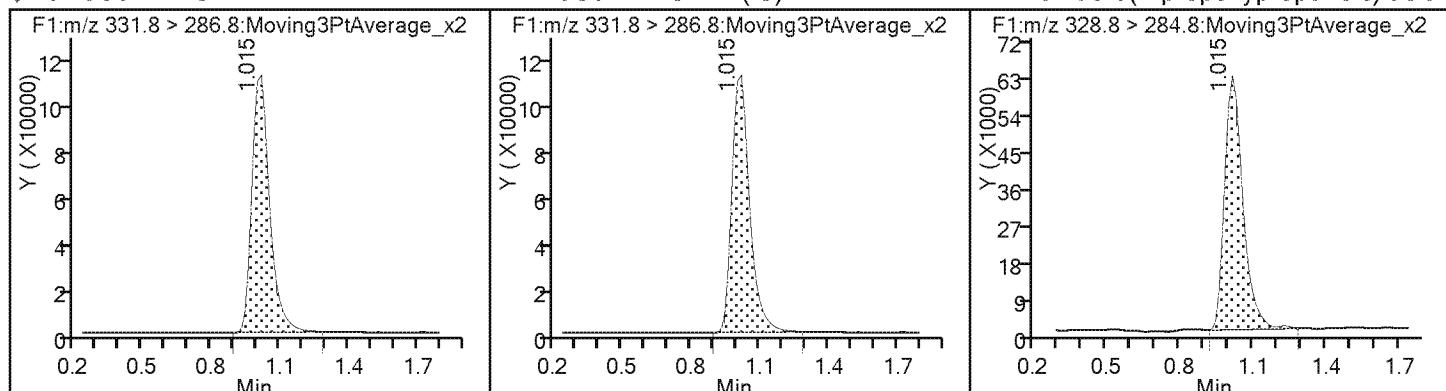
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

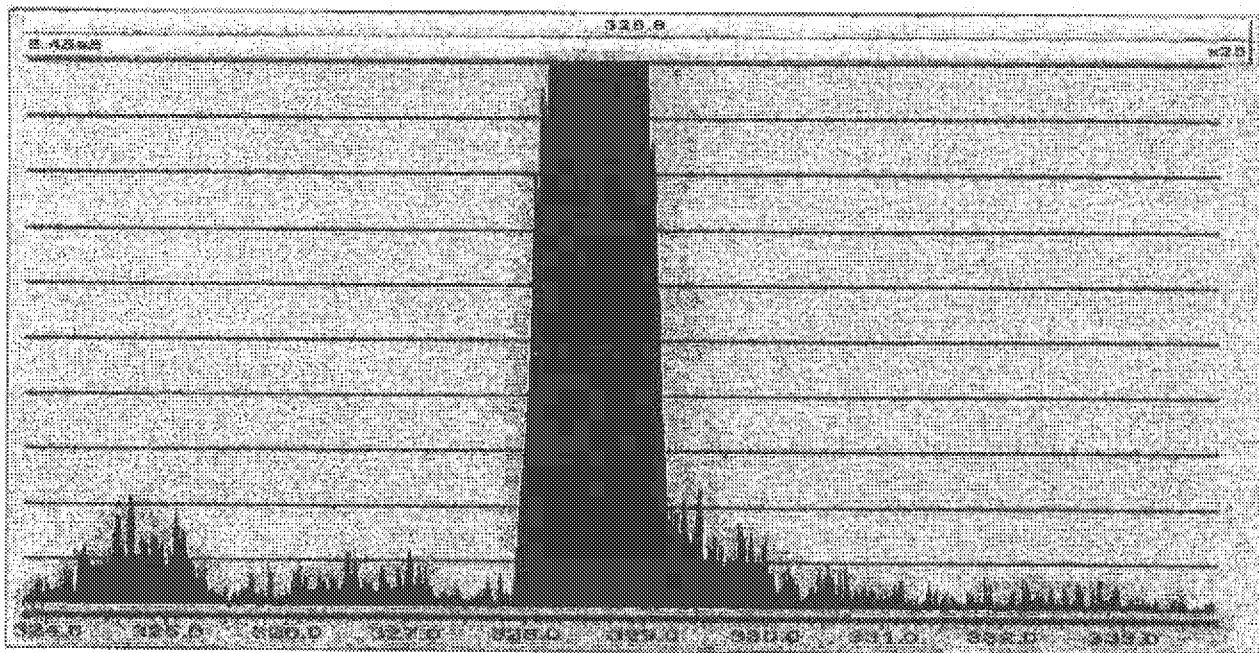
1 Perfluoro(2-propoxypropanoic) acid



File: C:\MassLynx\8321.PRO\ACQUID8HFPO.MRM.lpr

Instrument: XEVO-TQMSIVBA453

Printed: Monday, March 12, 2018 08:05:24 Mountain Daylight Time



File: C:\MassLynx\8321.PRO\ACQUIDBVHFFPOMRM.ipr

Instrument: XEVO-TQMSIVBA453

Printed: Monday, March 12, 2018 08:05:24 Mountain Daylight Time

Multplier 623.81
Active Reservoir A

Pressure Gauges
Collision Cell Pressure (mbar) 7.830201e-005

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs) 0.005
Polarity/Mode switch Inter-scan delay (secs) 0.020
Enhanced Inter-scan delay (secs) 0.020
Inter-channel delay - See Tables

MS 1 Delay Table:

R	delay
<= 0.500	0.005
<= 2.000	0.008
<= 4.000	0.010
<= 11.000	0.012
> 11.000	0.014

C:\MassLynx\8321.PRO\ACQUIDBVHFFPOMRM

3/12/18

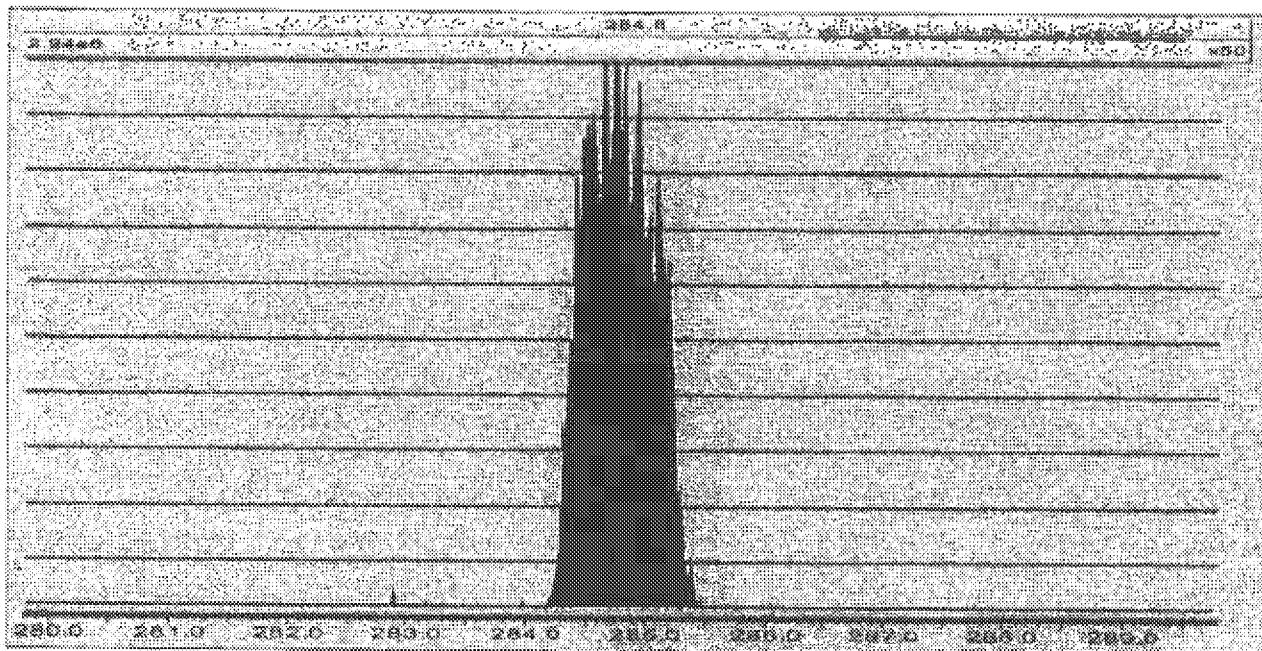
MS 2 Delay Table:

R	delay
<= 8.000	0.008
<= 25.000	0.006
> 25.000	0.007

File: C:\MassLynx\8821.PRO\ACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\IVBA463

Printed: Monday, March 12, 2018 08:06:05 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	279.80	289.80	326.80
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.50	0.52	
Cone (V)	10.00	-21.06	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	120	
Desolvation Temperature (°C)	200	200	
Cone Gas Flow (L/Hr)	50	50	
Desolvation Gas Flow (L/Hr)	800	791	
Collision Gas Flow (mL/Min)	0.15	0.14	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.8		
Ion Energy 1	0.7		
MS Mode Collision Energy	7.00		Judah POM
MSMS Mode Collision Energy	20.00		3/12/18
MS Mode Entrance	0.50		
MS Mode Exit	0.60		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.60		
Gas On MSMS Mode Exit	0.60		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave MS Mode Entrance	0.50		
ScanWave MS Mode Exit	0.60		
ScanWave MSMS Mode Entrance	0.50		
ScanWave MSMS Mode Exit	0.50		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

File: C:\MassLynx\8321.PRO\ACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\VBAA53

Printed: Monday, March 12, 2018 08:06:05 Mountain Daylight Time

Multiplier 523.81
Active Reservoir A

Pressure Gauges
Collision Cell Pressure (mbar) 1.119026e-003

Instrument Configuration**Automatic Mode**

MS Inter-scan delay (secs) 0.005
Polarity/Mode switch Inter-scan delay (secs) 0.020
Enhanced Inter-scan delay (secs) 0.020
Inter-channel delay - See Tables

MS 1 Delay Table:

R delay 3/13/18
 <= 0.500 0.005
 <= 2.000 0.008
 <= 4.000 0.010
 <= 11.000 0.012
 > 11.000 0.014
MS 2 Delay Table:
R delay
 <= 8.000 0.005
 <= 25.000 0.008
 > 25.000 0.007

File: c:\masslynx\8321.prolacquedb\rfpo.exp

Printed: Monday, March 12, 2018 10:32:13 Mountain Daylight Time

Creation Time Fri 18 Nov 2016 09:08:40
Instrument Identifier XEVO-TQMS\WBA483
Version Number 1.0
Duration (min) 2.0
Calibration Filename C:\MassLynx\IntellิStart\Results\Unit Mass Resolution\Calibration_20100811

2.cal
Solvent Delay Divert Valve Enabled 0
Number Of Functions 1

Function 1 : MRM of 2 mass pairs, Time 0.00 to 2.00, ES-

Type MRM
Ion Mode ES-
Inter Channel Delay (sec) -1.000
InterScan Time (sec) -1.000
Span (Da) 0.5
Start Time (min) 0.0
End Time (min) 2.0

Ch	Prmt(Da)	Dau(Da)	Dwell(s)	Cons(V)	Coll(eV)	Delay(s)	Compound
1	328.80	284.80	0.400	10.00	7.00	-1.000	RFPO
2	331.80	286.80	0.400	10.00	7.00	-1.000	RFPO is

d\ndeParr

3/13/18.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1
SDG No.:
Client Sample ID: Lab Sample ID: MB 280-406765/1-A
Matrix: Air Lab File ID: hfpo718C12019.d
Analysis Method: 8321A Date Collected:
Extraction Method: None Date Extracted: 03/11/2018 10:52
Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:16
Con. Extract Vol.: 5 (mL) Dilution Factor: 1
Injection Volume: 20 (uL) GC Column: Synergi Hydro ID:
% Moisture: GPC Cleanup: (Y/N) N
Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	ND		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	94		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12019.d
 Lims ID: MB 280-406765/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 12-Mar-2018 09:16:02 ALS Bottle#: 18 Worklist Smp#: 19
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-406765/1-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 701542 9.40 2791
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 701542 10.0 2791

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12019.d

Injection Date: 12-Mar-2018 09:16:02

Instrument ID: LC_LCMS7

Lims ID: MB 280-406765/1-A

Client ID:

Operator ID: JBH

ALS Bottle#: 18 Worklist Smp#: 19

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

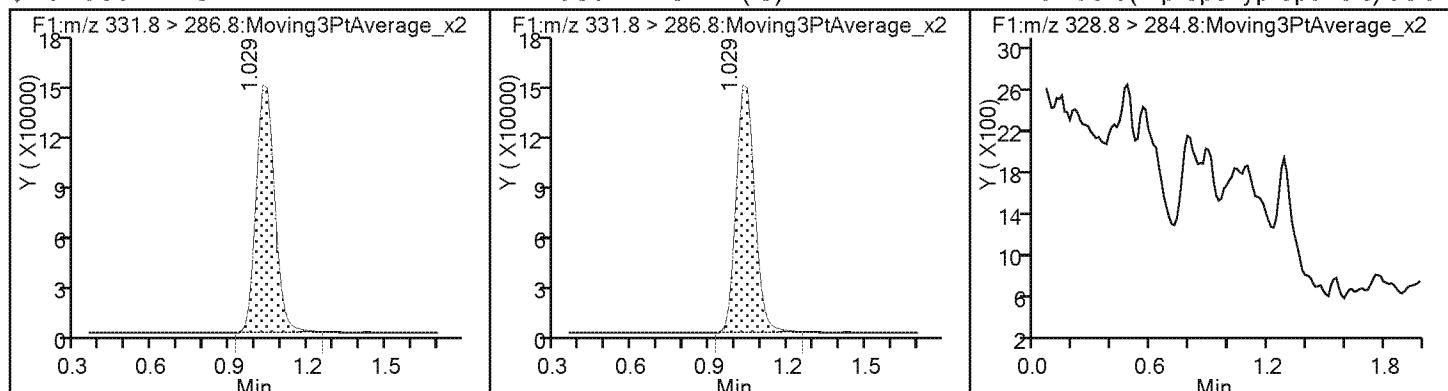
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12019.d
 Lims ID: MB 280-406765/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 12-Mar-2018 09:16:02 ALS Bottle#: 18 Worklist Smp#: 19
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-406765/1-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.40	93.97

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCS 280-406765/2-A

Matrix: Air Lab File ID: hfpo718C12020.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:19

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.05486		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	90		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12020.d
 Lims ID: LCS 280-406765/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 12-Mar-2018 09:19:17 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-406765/2-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 668790 8.96 3108
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 668790 10.0 3108
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 783092 11.0 306

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12020.d

Injection Date: 12-Mar-2018 09:19:17

Instrument ID: LC_LCMS7

Lims ID: LCS 280-406765/2-A

Client ID:

Operator ID: JBH

ALS Bottle#: 19 Worklist Smp#: 20

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

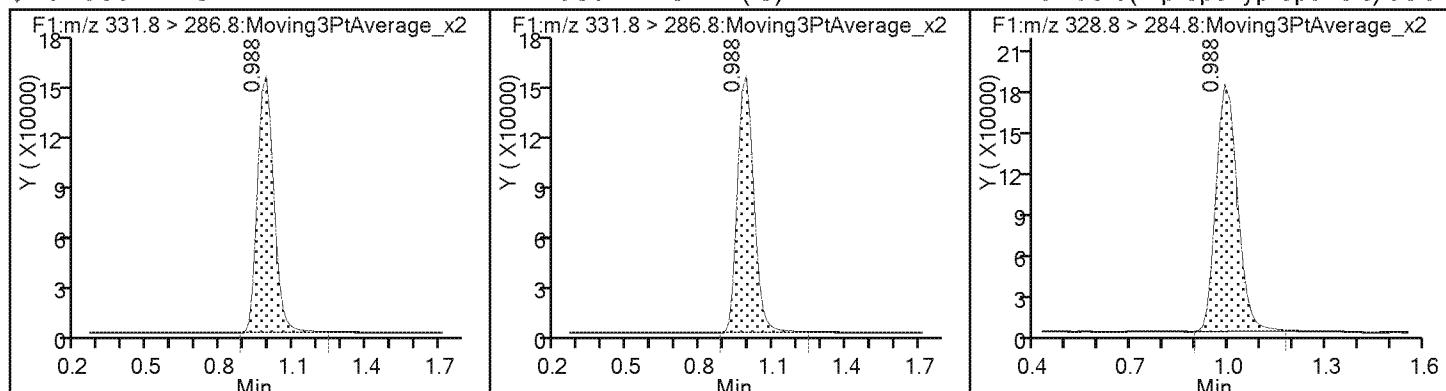
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12020.d
 Lims ID: LCS 280-406765/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 12-Mar-2018 09:19:17 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-406765/2-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.96	89.58

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCSD 280-406765/14-A

Matrix: Air Lab File ID: hfpo718C12021.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:22

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.05420		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	92		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12021.d
 Lims ID: LCSD 280-406765/14-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 12-Mar-2018 09:22:32 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-406765/14-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 683235 9.15 2358
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 683235 10.0 2358
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 790356 10.8 260

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12021.d

Injection Date: 12-Mar-2018 09:22:32 Instrument ID: LC_LCMS7

Lims ID: LCSD 280-406765/14-A

Client ID:

Operator ID: JBH

ALS Bottle#: 20 Worklist Smp#: 21

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

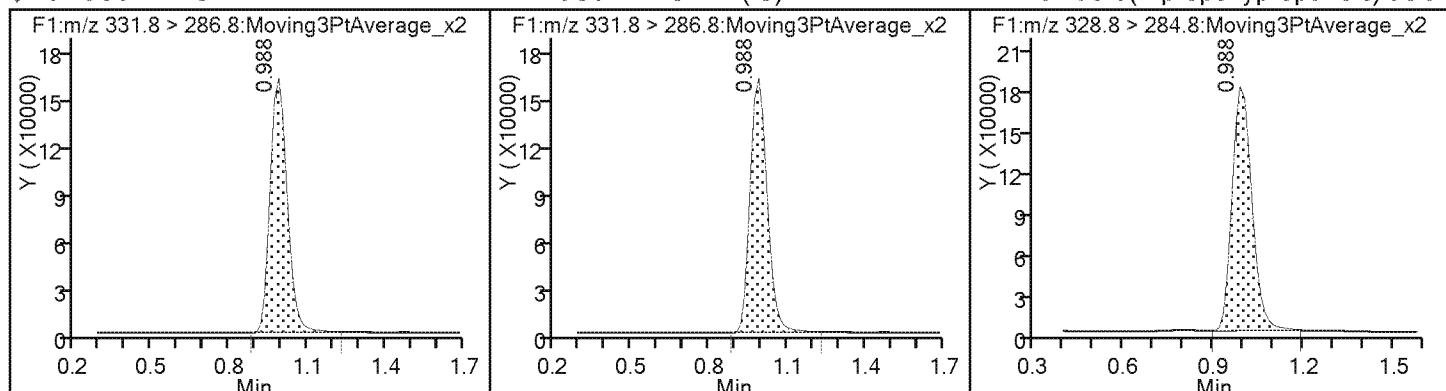
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12021.d
 Lims ID: LCSD 280-406765/14-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 12-Mar-2018 09:22:32 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-406765/14-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.15	91.51

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10862-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LLCS 280-406765/15-A

Matrix: Air Lab File ID: hfpo718C12022.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:25

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.004384		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	87		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12022.d
 Lims ID: LLCS 280-406765/15-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 12-Mar-2018 09:25:47 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-406765/15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 648824 8.69 2403
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 648824 10.0 2403
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 62868 0.8769 21.3

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12022.d

Injection Date: 12-Mar-2018 09:25:47 Instrument ID: LC_LCMS7

Lims ID: LLCS 280-406765/15-A

Client ID:

Operator ID: JBH

ALS Bottle#: 21 Worklist Smp#: 22

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

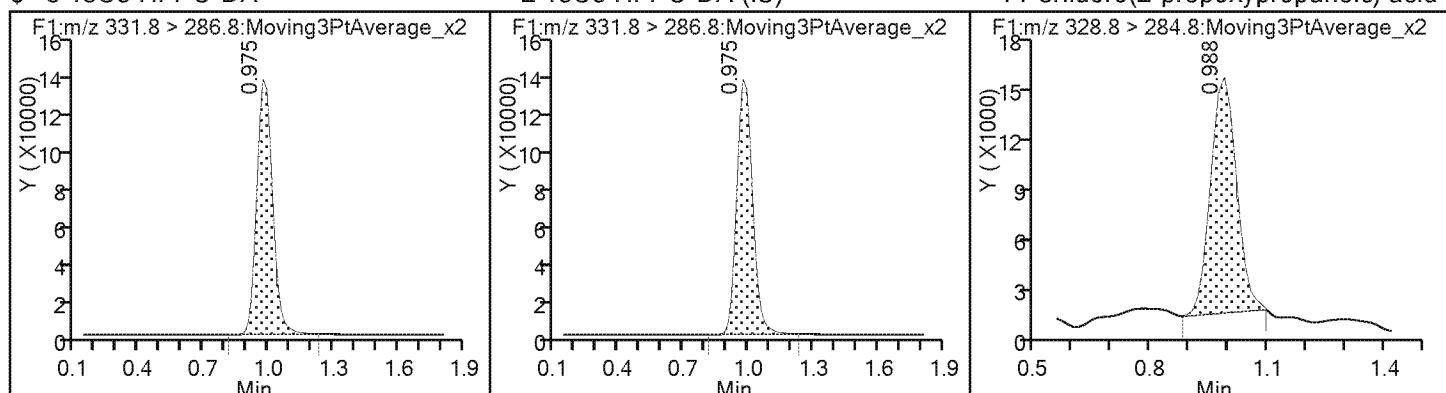
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12022.d
 Lims ID: LLCS 280-406765/15-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 12-Mar-2018 09:25:47 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-406765/15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.69	86.90

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 02/08/2018 13:05

Analysis Batch Number: 404345

End Date: 02/08/2018 13:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-404345/3 IC		02/08/2018 13:05	1	hfpo718B08034.d	Synergi Hydro
STD002 280-404345/4 IC		02/08/2018 13:08	1	hfpo718B08035.d	Synergi Hydro
STD003 280-404345/5 IC		02/08/2018 13:12	1	hfpo718B08036.d	Synergi Hydro
STD004 280-404345/6 IC		02/08/2018 13:15	1	hfpo718B08037.d	Synergi Hydro
STD005 280-404345/7 IC		02/08/2018 13:18	1	hfpo718B08038.d	Synergi Hydro
STD006 280-404345/8 IC		02/08/2018 13:21	1	hfpo718B08039.d	Synergi Hydro
STD007 280-404345/9 IC		02/08/2018 13:25	1	hfpo718B08040.d	Synergi Hydro
STD008 280-404345/10 IC		02/08/2018 13:28	1	hfpo718B08041.d	Synergi Hydro
STD009 280-404345/11 IC		02/08/2018 13:31	1	hfpo718B08042.d	Synergi Hydro

8321A

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 03/12/2018 09:12

Analysis Batch Number: 407567

End Date: 03/12/2018 10:08

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-407567/18		03/12/2018 09:12	1	hfpo718C12018.d	Synergi Hydro
MB 280-406765/1-A		03/12/2018 09:16	1	hfpo718C12019.d	Synergi Hydro
LCS 280-406765/2-A		03/12/2018 09:19	1	hfpo718C12020.d	Synergi Hydro
LCSD 280-406765/14-A		03/12/2018 09:22	1	hfpo718C12021.d	Synergi Hydro
LLCS 280-406765/15-A		03/12/2018 09:25	1	hfpo718C12022.d	Synergi Hydro
140-10862-3		03/12/2018 09:29	1	hfpo718C12023.d	Synergi Hydro
140-10862-7		03/12/2018 09:32	1	hfpo718C12024.d	Synergi Hydro
140-10862-11		03/12/2018 09:35	1	hfpo718C12025.d	Synergi Hydro
140-10862-15		03/12/2018 09:38	1	hfpo718C12026.d	Synergi Hydro
140-10862-17		03/12/2018 09:42	1	hfpo718C12027.d	Synergi Hydro
CCV 280-407567/28		03/12/2018 09:45	1	hfpo718C12028.d	Synergi Hydro
ZZZZZ		03/12/2018 09:48	1		Synergi Hydro
ZZZZZ		03/12/2018 09:51	1		Synergi Hydro
ZZZZZ		03/12/2018 09:55	1		Synergi Hydro
ZZZZZ		03/12/2018 09:58	1		Synergi Hydro
ZZZZZ		03/12/2018 10:01	1		Synergi Hydro
ZZZZZ		03/12/2018 10:04	1		Synergi Hydro
CCV 280-407567/35		03/12/2018 10:08	1		Synergi Hydro

8321A

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

Batch Method: None

Batch End Date: 03/11/18 14:19

Lab Sample ID	Client Sample ID	Method Chain	Basis	VolumeCollect	VolCondUsed	InitialAmount	FinalAmount	HFPO I.S. 00009	HFPO Spike 00004
MB 280-406765/1		None, 8321A				1 Sample	5 mL	0.1 mL	
LCS 280-406765/2		None, 8321A				1 Sample	5 mL	0.1 mL	0.1 mL
140-10862-A-3	C-2805 R1 M0010 IMP COND	None, 8321A	T	200 mL	10 mL	0.05 Sample	5 mL	0.1 mL	
140-10862-A-7	C-2812 R2 M0010 IMP COND	None, 8321A	T	190 mL	9.5 mL	0.05 Sample	5 mL	0.1 mL	
140-10862-A-11	C-2819 R3 M0010 IMP COND	None, 8321A	T	250 mL	250 mL	1 Sample	5 mL	0.1 mL	
140-10862-A-15	C-2826 R QC M0010 IMP COND BT	None, 8321A	T	250 mL	250 mL	1 Sample	5 mL	0.1 mL	
140-10862-A-17	C-2829 R QC M0010 DI WATER RB	None, 8321A	T	250 mL	250 mL	1 Sample	5 mL	0.1 mL	
LCSD 280-406765/14		None, 8321A				1 Sample	5 mL	0.1 mL	0.1 mL
LLCS 280-406765/15		None, 8321A				1 Sample	5 mL	0.1 mL	0.01 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
MB 280-406765/1		None, 8321A		250 mL					
LCS 280-406765/2		None, 8321A		250 mL					
140-10862-A-3	C-2805 R1 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight-270.7g, tare weight- 27.0g					
140-10862-A-7	C-2812 R2 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 272.4g,tare weight- 26.5g					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8321A

Page 1 of 3

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

Batch Method: None

Batch End Date: 03/11/18 14:19

Lab Sample ID	Client Sample ID	Method Chain	Basis	Analysis Comment					
140-10862-A-11	C-2819 R3 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight-271.9g, tare weight- 26.5g					
140-10862-A-15	C-2826 R QC M0010 IMP COND BT	None, 8321A	T	brought up to 250mL for Denver lab to extract, Gross weight- 266.4g, tare weight- 27.8g					
140-10862-A-17	C-2829 R QC M0010 DI WATER RB	None, 8321A	T	brought up to 250mL for Denver lab to extract, Gross weight- 277.2g, tare weight- 38.1g					
LCSD 280-406765/14		None, 8321A		250 mL					
LLCS 280-406765/15		None, 8321A		250 mL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8321A

Page 2 of 3

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10862-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

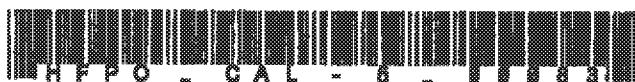
Batch Method: None

Batch End Date: 03/11/18 14:19

Batch Notes	
Acid ID	2%FormicAcid_147
Balance ID	24350888(Denver)
Batch Comment	Batch originated by David Stout who brought samples to 250mL Reviewer:HA
Elution Solution ID	10%NH4OH_123
Extraction End time	12:40
Extraction End Date	03/11/2018
Extraction Start time	11:22
Extraction Start Date	03/11/2018
H2O ID	HPLC_water_867
Pipette/Syringe/Dispenser ID	m2. spe-1, syringe
Solvent	Methanol_196
SPE Cartridge Lot ID	S308-0079
SPE Cartridge Type	strata-x-aw-8BSO38FCH
Analyst ID - Spike Analyst	HA
Analyst ID - Spike Witness Analyst	HA

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.



Reagent ID: HFPO_CAL-5_00083

Description:	level5	Expiration Date:	03/21/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/07/2018	Solvent Lot:	00016
Open Date:			
Container(s):	4891513		
Comment:	level-5		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO_I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO_I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO_Spike_00008	03/07/2018	0.50000	ug/mL	5.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO_I.S._00010	Internal Standard for HFPO 0.8ug/ml		03/06/18				20.00000	uL
HFPO_Spike_00008	HFPO LOS/Calibration Spike 0.8ug/ml		03/07/18				10.00000	uL

July 2018

7/13/18



Reagent ID: **HFPO_CAL-6_00083**

Description:	level6	Expiration Date:	03/21/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H ₂ O
Creation Date:	03/07/2018	Solvent Lot:	00018
Open Date:			
Container(s):	4991514		
Comment:	level-6		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropenoic) acid	HFPO Spike_00008	03/07/2018	0.50000	ug/mL	10.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO I.S._00010	Internal Standard for HFPO 0.5ug/ml		03/06/18				20.00000	uL
HFPO Spike_00008	HFPO LC/Calibration Spike 0.5ug/ml		03/07/18				20.00000	uL

chudz@tm
2/13/18

ANALYTICAL REPORT

Job Number: 140-10863-1

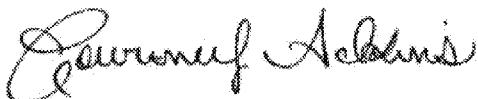
Job Description: Polymer Processing Area Emissions Test

Contract Number: LBIO-67048

For:

Chemours Company FC, LLC The
c/o AECOM
Sabre Building, Suite 300
4051 Ogletown Road
Newark, DE 19713

Attention: Michael Aucoin



Approved for release.
Courtney M Adkins
Project Manager I
3/26/2018 8:55 AM

Courtney M Adkins, Project Manager I
5815 Middlebrook Pike, Knoxville, TN, 37921
(865)291-3000
courtney.adkins@testamericainc.com
03/26/2018

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TestAmerica Laboratories, Inc.

TestAmerica Knoxville 5815 Middlebrook Pike, Knoxville, TN 37921

Tel (865) 291-3000 Fax (865) 584-4315 www.testamericainc.com

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Definitions/Glossary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Qualifiers

LCMS

Qualifier	Qualifier Description
X	Surrogate is outside control limits
E	Result exceeded calibration range.
D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

☒	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Method	Method Description	Protocol	Laboratory
8321A	PFOA and PFOS	SW846	TAL DEN
8321A	HFPO-DA	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Knoxville

Sample Summary

Client: Chemours Company FC, LLC The
 Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10863-1	H-2201,2202 R1 M0010 FH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-3	H-2205 R1 M0010 IMP COND	Air	03/01/18 00:00	03/03/18 08:00
140-10863-4	H-2207 R1 M0010 XAD-2	Air	03/01/18 00:00	03/03/18 08:00
140-10863-5	H-2208,2209 R2 M0010 FH	Air	03/02/18 00:00	03/03/18 08:00
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Air	03/02/18 00:00	03/03/18 08:00
140-10863-7	H-2212 R2 M0010 IMP COND	Air	03/02/18 00:00	03/03/18 08:00
140-10863-8	H-2214 R2 M0010 XAD-2	Air	03/02/18 00:00	03/03/18 08:00
140-10863-9	H-2222,2223 R4 M0010 FH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-11	H-2226 R4 M0010 IMP COND	Air	03/01/18 00:00	03/03/18 08:00
140-10863-12	H-2228 R4 M0010 XAD-2	Air	03/01/18 00:00	03/03/18 08:00
140-10863-13	H-2229,2230 R5 M0010 FH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-14	H-2231,2232,2234 R5 M0010 BH	Air	03/01/18 00:00	03/03/18 08:00
140-10863-15	H-2233 R5 M0010 IMP COND	Air	03/01/18 00:00	03/03/18 08:00
140-10863-16	H-2235 R5 M0010 XAD-2	Air	03/01/18 00:00	03/03/18 08:00
140-10863-17	H-2243,2244 R QC M0010 FH BT	Air	03/02/18 00:00	03/03/18 08:00
140-10863-18	H-2245,2246,2248 R QC M0010 BH BT	Air	03/02/18 00:00	03/03/18 08:00
140-10863-19	H-2247 R QC M0010 IMP COND BT	Air	03/02/18 00:00	03/03/18 08:00
140-10863-20	H-2249 R QC M0010 XAD-2 BT	Air	03/02/18 00:00	03/03/18 08:00
140-10863-21	H-2250 R QC M0010 DI WATER RB	Air	03/01/18 00:00	03/03/18 08:00
140-10863-22	H-2251 R QC M0010 MEOH WITH 5% NH4OH RB	Air	03/01/18 00:00	03/03/18 08:00
140-10863-23	H-2252 R QC M0010 XAD-2 RB	Air	03/01/18 00:00	03/03/18 08:00
140-10863-24	H-2253 R QC M0010 MEOH WITH 5% HN4OH TB	Air	03/01/18 00:00	03/03/18 08:00
140-10863-25	H-2254 R QC M0010 XAD-2 TB	Air	03/01/18 00:00	03/03/18 08:00
140-10863-26	H-2255,2256,2257 R QC M0010 PROOF BLANK	Air	03/01/18 00:00	03/03/18 08:00

TestAmerica Knoxville

Job Narrative 140-10863-1

Sample Receipt

The samples were received on March 3, 2018 at 8:00 AM in good condition and properly preserved. The temperatures of the 5 coolers at receipt time were 1.3° C, 1.7° C, 2.3° C, 2.7° C and 2.9° C.

Quality Control and Data Interpretation

Unless otherwise noted, all holding times, and QC criteria were met and the test results shown in this report meet all applicable NELAC requirements.

Method 0010/Method 3542 Sampling Train Preparation

Train fractions were extracted and prepared for analysis in TestAmerica's Knoxville laboratory. Extracts and condensate samples were forwarded to the Denver laboratory for HFPO-DA analysis. All results are reported in "Total ug" per sample.

LCMS

Samples associated with this analytical batch were originally analyzed with an "E" flag to indicate that the HFPO-DA exceeded the calibration curve of the method. Project specific calculations are provided as an addendum to this narrative.

Organic Prep

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Comments

Reporting Limits (RLs) and Method Detection Limits (MDLs) for the HFPO-DA used in this report were derived in Denver for reporting soils and water samples. Method 0010 sampling train matrix specific RLs and MDLs have not been established for HFPO-DA. The soil and water limits are expected to be reasonable approximations of the actual matrix specific limits, under these conditions.

The expanded deliverable section of the package is split into two sections: 8321A_HFPO_DU is specific to condensates, and Method DV-LC-0012 contains the XAD and Filter data. Both methods share the same calibration on 10/10/17. A single instance of this calibration and the associated detection limit check (DLCK) and Initial calibration verification (ICV) can be found in the 8321A_HFPO_DU section of the package as part of our automated package generation procedures.

Chemours PPA Stack Test Analytical Report
TestAmerica Job No. 140-10863-1
March 23, 2018

The following samples exceeded the Method 8321A calibration range for HFPO-DA and required that dilution of the extracts be performed:

- H-2203, H-2204 and H-2206 (PPA Stack) Run #1 Back-Half Composite (XAD-2 Resin and Glassware Rinses)
- H-2210, H-2211 and H-2213 (PPA Stack) Run #2 Back-Half Composite (XAD-2 Resin and Glassware Rinses)

The original analysis concentration which displays the "E" flag is provided with the data set indicating that the value provided is estimated. The $^{13}\text{C}_3$ – HFPO-DA isotope dilution internal standard (IDA) recovery percentage (%) however, is provided with this analysis run.

A second analysis concentration displays an accurate concentration of the HFPO-DA in the diluted sample extract, but the value is uncorrected for the IDA recovery percentage from the original matrix. The recovery percentage presented with the second concentration represents a post-spike of IDA to benchmark the instrument quantification of native HFPO-DA.

Final recovery-corrected concentrations of the native HFPO-DA are provided by calculation using the original recovery value of the IDA and the diluted extract values of the native HFPO-DA. The final concentrations are calculated as follows:

- H-2203, H-2204 and H-2206 (PPA Stack) Run#1 Back-Half Composite (XAD-2 and Resin and Rinses)
$$(27,400 \mu\text{g}) \times \left(\frac{70}{51}\right) = 37,600 \mu\text{g}$$
- H-2210, H-2211 and H-2213 (PPA Stack) Run #2 Back-Half Composite (XAD-2 Resin and Glassware Rinses)
$$(41,600 \mu\text{g}) \times \left(\frac{69}{54}\right) = 53,200 \mu\text{g}$$

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

LCMS

Analysis Batch: 404345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
DLCK 280-404345/13	Lab Control Sample	Total/NA	Air	8321A	

Prep Batch: 406763

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-1	H-2201,2202 R1 M0010 FH	Total/NA	Air	None	
140-10863-5	H-2208,2209 R2 M0010 FH	Total/NA	Air	None	
140-10863-9	H-2222,2223 R4 M0010 FH	Total/NA	Air	None	
140-10863-13	H-2229,2230 R5 M0010 FH	Total/NA	Air	None	
140-10863-17	H-2243,2244 R QC M0010 FH BT	Total/NA	Air	None	
140-10863-22	H-2251 R QC M0010 MEOH WITH 5% NH4OH F	Total/NA	Air	None	
140-10863-24	H-2253 R QC M0010 MEOH WITH 5% HN4OH T	Total/NA	Air	None	
MB 280-406763/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406763/2-A	Lab Control Sample	Total/NA	Air	None	

Prep Batch: 406764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	None	
140-10863-2 - DL	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	None	
140-10863-4	H-2207 R1 M0010 XAD-2	Total/NA	Air	None	
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	None	
140-10863-6 - DL	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	None	
140-10863-8	H-2214 R2 M0010 XAD-2	Total/NA	Air	None	
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Total/NA	Air	None	
140-10863-12	H-2228 R4 M0010 XAD-2	Total/NA	Air	None	
140-10863-14	H-2231,2232,2234 R5 M0010 BH	Total/NA	Air	None	
140-10863-16	H-2235 R5 M0010 XAD-2	Total/NA	Air	None	
140-10863-18	H-2245,2246,2248 R QC M0010 BH BT	Total/NA	Air	None	
140-10863-20	H-2249 R QC M0010 XAD-2 TB	Total/NA	Air	None	
140-10863-23	H-2252 R QC M0010 XAD-2 RB	Total/NA	Air	None	
140-10863-25	H-2254 R QC M0010 XAD-2 TB	Total/NA	Air	None	
140-10863-26	H-2255,2256,2257 R QC M0010 PROOF BLANK	Total/NA	Air	None	
MB 280-406764/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406764/2-A	Lab Control Sample	Total/NA	Air	None	

Prep Batch: 406765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-3	H-2205 R1 M0010 IMP COND	Total/NA	Air	None	
140-10863-7	H-2212 R2 M0010 IMP COND	Total/NA	Air	None	
140-10863-11	H-2226 R4 M0010 IMP COND	Total/NA	Air	None	
140-10863-15	H-2233 R5 M0010 IMP COND	Total/NA	Air	None	
140-10863-19	H-2247 R QC M0010 IMP COND BT	Total/NA	Air	None	
140-10863-21	H-2250 R QC M0010 DI WATER RB	Total/NA	Air	None	
MB 280-406765/1-A	Method Blank	Total/NA	Air	None	
LCS 280-406765/2-A	Lab Control Sample	Total/NA	Air	None	
LCSD 280-406765/14-A	Lab Control Sample Dup	Total/NA	Air	None	
LLCS 280-406765/15-A	Lab Control Sample	Total/NA	Air	None	

Prep Batch: 407095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	None	
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	None	

TestAmerica Knoxville

QC Association Summary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

LCMS (Continued)

Prep Batch: 407095 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Total/NA	Air	None	
140-10863-14	H-2231,2232,2234 R5 M0010 BH	Total/NA	Air	None	

Analysis Batch: 407389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-1	H-2201,2202 R1 M0010 FH	Total/NA	Air	8321A	406763
140-10863-5	H-2208,2209 R2 M0010 FH	Total/NA	Air	8321A	406763
140-10863-9	H-2222,2223 R4 M0010 FH	Total/NA	Air	8321A	406763
140-10863-13	H-2229,2230 R5 M0010 FH	Total/NA	Air	8321A	406763
140-10863-17	H-2243,2244 R QC M0010 FH BT	Total/NA	Air	8321A	406763
140-10863-22	H-2251 R QC M0010 MEOH WITH 5% NH4OH F	Total/NA	Air	8321A	406763
140-10863-24	H-2253 R QC M0010 MEOH WITH 5% HN4OH T	Total/NA	Air	8321A	406763
MB 280-406763/1-A	Method Blank	Total/NA	Air	8321A	406763
LCS 280-406763/2-A	Lab Control Sample	Total/NA	Air	8321A	406763

Analysis Batch: 407390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	8321A	406764
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	8321A	406764
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Total/NA	Air	8321A	406764
140-10863-12	H-2228 R4 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10863-14	H-2231,2232,2234 R5 M0010 BH	Total/NA	Air	8321A	406764
140-10863-16	H-2235 R5 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10863-18	H-2245,2246,2248 R QC M0010 BH BT	Total/NA	Air	8321A	406764
140-10863-20	H-2249 R QC M0010 XAD-2 BT	Total/NA	Air	8321A	406764
140-10863-23	H-2252 R QC M0010 XAD-2 RB	Total/NA	Air	8321A	406764
140-10863-25	H-2254 R QC M0010 XAD-2 TB	Total/NA	Air	8321A	406764
140-10863-26	H-2255,2256,2257 R QC M0010 PROOF BLANK	Total/NA	Air	8321A	406764
MB 280-406764/1-A	Method Blank	Total/NA	Air	8321A	406764
LCS 280-406764/2-A	Lab Control Sample	Total/NA	Air	8321A	406764

Analysis Batch: 407391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	8321A	407095
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	8321A	407095
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Total/NA	Air	8321A	407095
140-10863-14	H-2231,2232,2234 R5 M0010 BH	Total/NA	Air	8321A	407095

Analysis Batch: 407565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-1	H-2201,2202 R1 M0010 FH	Total/NA	Air	8321A	406763
140-10863-5	H-2208,2209 R2 M0010 FH	Total/NA	Air	8321A	406763
140-10863-9	H-2222,2223 R4 M0010 FH	Total/NA	Air	8321A	406763
140-10863-13	H-2229,2230 R5 M0010 FH	Total/NA	Air	8321A	406763
140-10863-17	H-2243,2244 R QC M0010 FH BT	Total/NA	Air	8321A	406763

Analysis Batch: 407566

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	8321A	407095
140-10863-4	H-2207 R1 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10863-6	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	8321A	407095

TestAmerica Knoxville

QC Association Summary

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

LCMS (Continued)

Analysis Batch: 407566 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-8	H-2214 R2 M0010 XAD-2	Total/NA	Air	8321A	406764
140-10863-10	H-2224,2225,2227 R4 M0010 BH	Total/NA	Air	8321A	406764
140-10863-18	H-2245,2246,2248 R QC M0010 BH BT	Total/NA	Air	8321A	406764

Analysis Batch: 407567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-3	H-2205 R1 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10863-7	H-2212 R2 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10863-11	H-2226 R4 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10863-15	H-2233 R5 M0010 IMP COND	Total/NA	Air	8321A	406765
140-10863-19	H-2247 R QC M0010 IMP COND BT	Total/NA	Air	8321A	406765
140-10863-21	H-2250 R QC M0010 DI WATER RB	Total/NA	Air	8321A	406765
MB 280-406765/1-A	Method Blank	Total/NA	Air	8321A	406765
LCS 280-406765/2-A	Lab Control Sample	Total/NA	Air	8321A	406765
LCSD 280-406765/14-A	Lab Control Sample Dup	Total/NA	Air	8321A	406765
LLCS 280-406765/15-A	Lab Control Sample	Total/NA	Air	8321A	406765

Analysis Batch: 408337

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
140-10863-2 - DL	H-2203,2204,2206 R1 M0010 BH	Total/NA	Air	8321A	406764
140-10863-6 - DL	H-2210,2211,2213 R2 M0010 BH	Total/NA	Air	8321A	406764

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2201,2202 R1 M0010 FH

Lab Sample ID: 140-10863-1

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	714	E	0.150	0.150	ug/Sample		03/05/18 14:00	03/09/18 12:34	1
HFPO-DA	716		7.50	7.50	ug/Sample		03/05/18 14:00	03/12/18 08:33	50
Surrogate									
13C3 HFPO-DA	30	X	50 - 200				03/05/18 14:00	03/09/18 12:34	1
13C3 HFPO-DA	79	D	50 - 200				03/05/18 14:00	03/12/18 08:33	50

Client Sample ID: H-2203,2204,2206 R1 M0010 BH

Lab Sample ID: 140-10863-2

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	15100	E	0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:53	1
HFPO-DA	27000	E	100	100	ug/Sample		03/07/18 09:47	03/09/18 14:42	1
HFPO-DA	27400		200	200	ug/Sample		03/07/18 09:47	03/12/18 09:06	2
Surrogate									
13C3 HFPO-DA	4	X	50 - 200				03/05/18 04:38	03/09/18 13:53	1
13C3 HFPO-DA	69		50 - 200				03/07/18 09:47	03/09/18 14:42	1
13C3 HFPO-DA	70	D	50 - 200				03/07/18 09:47	03/12/18 09:06	2

Method: 8321A - PFOA and PFOS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	15300	E	10.0	10.0	ug/Sample		03/05/18 04:38	03/19/18 13:23	50
Surrogate									
13C3 HFPO-DA	51	D	50 - 200				03/05/18 04:38	03/19/18 13:23	50

Client Sample ID: H-2205 R1 M0010 IMP COND

Lab Sample ID: 140-10863-3

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.118	J	0.125	0.00638	ug/Sample		03/11/18 10:52	03/12/18 09:48	1
Surrogate									
13C3 HFPO-DA	91		50 - 200				03/11/18 10:52	03/12/18 09:48	1

Client Sample ID: H-2207 R1 M0010 XAD-2

Lab Sample ID: 140-10863-4

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/12/18 08:53	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2207 R1 M0010 XAD-2
Date Collected: 03/01/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-4
Matrix: Air

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	61		50 - 200	03/05/18 04:38	03/12/18 08:53	1

Client Sample ID: H-2208,2209 R2 M0010 FH
Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-5
Matrix: Air

Method: 8321A - PFOA and PFOS						
Analyte	Result	Qualifier	RL	MDL	Unit	D
HFPO-DA	611	E	0.100	0.100	ug/Sample	03/05/18 14:00
HFPO-DA	557		5.00	5.00	ug/Sample	03/05/18 14:00
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	26	X	50 - 200	03/05/18 14:00	03/09/18 12:41	1
13C3 HFPO-DA	86	D	50 - 200	03/05/18 14:00	03/12/18 08:37	50

Client Sample ID: H-2210,2211,2213 R2 M0010 BH
Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-6
Matrix: Air

Method: 8321A - PFOA and PFOS						
Analyte	Result	Qualifier	RL	MDL	Unit	D
HFPO-DA	19200	E	0.200	0.200	ug/Sample	03/05/18 04:38
HFPO-DA	41700	E	100	100	ug/Sample	03/07/18 09:47
HFPO-DA	41600		400	400	ug/Sample	03/07/18 09:47
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	4	X	50 - 200	03/05/18 04:38	03/09/18 13:59	1
13C3 HFPO-DA	66		50 - 200	03/07/18 09:47	03/09/18 14:45	1
13C3 HFPO-DA	69	D	50 - 200	03/07/18 09:47	03/12/18 09:09	4

Method: 8321A - PFOA and PFOS - DL						
Analyte	Result	Qualifier	RL	MDL	Unit	D
HFPO-DA	16800	E	10.0	10.0	ug/Sample	03/05/18 04:38
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	54	D	50 - 200	03/05/18 04:38	03/19/18 13:26	50

Client Sample ID: H-2212 R2 M0010 IMP COND
Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-7
Matrix: Air

Method: 8321A - HFPO-DA						
Analyte	Result	Qualifier	RL	MDL	Unit	D
HFPO-DA	ND		0.125	0.00638	ug/Sample	03/11/18 10:52
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	89		50 - 200	03/11/18 10:52	03/12/18 09:51	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2214 R2 M0010 XAD-2
Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-8
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.399		0.200	0.200	ug/Sample	D	03/05/18 04:38	03/12/18 08:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	72		50 - 200				03/05/18 04:38	03/12/18 08:56	1

Client Sample ID: H-2222,2223 R4 M0010 FH
Date Collected: 03/01/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-9
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	690	E	0.100	0.100	ug/Sample	D	03/05/18 14:00	03/09/18 12:44	1
HFPO-DA	682		5.00	5.00	ug/Sample	D	03/05/18 14:00	03/12/18 08:40	50
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	24	X	50 - 200				03/05/18 14:00	03/09/18 12:44	1
13C3 HFPO-DA	76	D	50 - 200				03/05/18 14:00	03/12/18 08:40	50

Client Sample ID: H-2224,2225,2227 R4 M0010 BH
Date Collected: 03/01/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-10
Matrix: Air

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	137	E	0.200	0.200	ug/Sample	D	03/05/18 04:38	03/09/18 14:06	1
HFPO-DA	212		100	100	ug/Sample	D	03/07/18 09:47	03/09/18 14:48	1
HFPO-DA	139		1.00	1.00	ug/Sample	D	03/05/18 04:38	03/12/18 08:59	5
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	58		50 - 200				03/05/18 04:38	03/09/18 14:06	1
13C3 HFPO-DA	75		50 - 200				03/07/18 09:47	03/09/18 14:48	1
13C3 HFPO-DA	64	D	50 - 200				03/05/18 04:38	03/12/18 08:59	5

Client Sample ID: H-2226 R4 M0010 IMP COND
Date Collected: 03/01/18 00:00
Date Received: 03/03/18 08:00
Sample Container: Air Train

Lab Sample ID: 140-10863-11
Matrix: Air

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.227		0.125	0.00638	ug/Sample	D	03/11/18 10:52	03/12/18 09:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	92		50 - 200				03/11/18 10:52	03/12/18 09:55	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2228 R4 M0010 XAD-2

Lab Sample ID: 140-10863-12

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	1.90		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:09	1
Surrogate									
13C3 HFPO-DA	63		50 - 200				03/05/18 04:38	03/09/18 14:09	1

Client Sample ID: H-2229,2230 R5 M0010 FH

Lab Sample ID: 140-10863-13

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	539	E	0.100	0.100	ug/Sample		03/05/18 14:00	03/09/18 12:47	1
HFPO-DA	534		5.00	5.00	ug/Sample		03/05/18 14:00	03/12/18 08:43	50
Surrogate									
13C3 HFPO-DA	28	X	50 - 200				03/05/18 14:00	03/09/18 12:47	1
13C3 HFPO-DA	77	D	50 - 200				03/05/18 14:00	03/12/18 08:43	50

Client Sample ID: H-2231,2232,2234 R5 M0010 BH

Lab Sample ID: 140-10863-14

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	11.3		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:16	1
HFPO-DA	ND		100	100	ug/Sample		03/07/18 09:47	03/09/18 14:51	1
Surrogate									
13C3 HFPO-DA	71		50 - 200				03/05/18 04:38	03/09/18 14:16	1
13C3 HFPO-DA	75		50 - 200				03/07/18 09:47	03/09/18 14:51	1

Client Sample ID: H-2233 R5 M0010 IMP COND

Lab Sample ID: 140-10863-15

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.250		0.125	0.00638	ug/Sample		03/11/18 10:52	03/12/18 09:58	1
Surrogate									
13C3 HFPO-DA	88		50 - 200				03/11/18 10:52	03/12/18 09:58	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2235 R5 M0010 XAD-2

Lab Sample ID: 140-10863-16

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.362		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:19	1
Surrogate									
13C3 HFPO-DA	66		50 - 200				03/05/18 04:38	03/09/18 14:19	1

Client Sample ID: H-2243,2244 R QC M0010 FH BT

Lab Sample ID: 140-10863-17

Date Collected: 03/02/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	6.11	E	0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:51	1
HFPO-DA	5.89		0.0500	0.0500	ug/Sample		03/05/18 14:00	03/12/18 08:46	2
Surrogate									
13C3 HFPO-DA	66		50 - 200				03/05/18 14:00	03/09/18 12:51	1
13C3 HFPO-DA	70	D	50 - 200				03/05/18 14:00	03/12/18 08:46	2

Client Sample ID: H-2245,2246,2248 R QC M0010 BH BT

Lab Sample ID: 140-10863-18

Date Collected: 03/02/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	50.6	E	0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:22	1
HFPO-DA	52.4		0.400	0.400	ug/Sample		03/05/18 04:38	03/12/18 09:03	2
Surrogate									
13C3 HFPO-DA	70		50 - 200				03/05/18 04:38	03/09/18 14:22	1
13C3 HFPO-DA	66	D	50 - 200				03/05/18 04:38	03/12/18 09:03	2

Client Sample ID: H-2247 R QC M0010 IMP COND BT

Lab Sample ID: 140-10863-19

Date Collected: 03/02/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0106		0.00250	0.000128	ug/Sample		03/11/18 10:52	03/12/18 10:01	1
Surrogate									
13C3 HFPO-DA	69		50 - 200				03/11/18 10:52	03/12/18 10:01	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2249 R QC M0010 XAD-2 BT

Lab Sample ID: 140-10863-20

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:25	1
Surrogate									
13C3 HFPO-DA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	67		50 - 200				03/05/18 04:38	03/09/18 14:25	1

Client Sample ID: H-2250 R QC M0010 DI WATER RB

Lab Sample ID: 140-10863-21

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - HFPO-DA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.00250	0.000128	ug/Sample		03/11/18 10:52	03/12/18 10:04	1
Surrogate									
13C3 HFPO-DA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	81		50 - 200				03/11/18 10:52	03/12/18 10:04	1

Client Sample ID: H-2251 R QC M0010 MEOH WITH 5% NH4OH

Lab Sample ID: 140-10863-22

RB

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:54	1
Surrogate									
13C3 HFPO-DA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	73		50 - 200				03/05/18 14:00	03/09/18 12:54	1

Client Sample ID: H-2252 R QC M0010 XAD-2 RB

Lab Sample ID: 140-10863-23

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.291		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:29	1
Surrogate									
13C3 HFPO-DA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	27	X	50 - 200				03/05/18 04:38	03/09/18 14:29	1

TestAmerica Knoxville

Client Sample Results

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2253 R QC M0010 MEOH WITH 5% HN4OH

Lab Sample ID: 140-10863-24

TB

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:57	1
Surrogate									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	74		50 - 200				03/05/18 14:00	03/09/18 12:57	1

Client Sample ID: H-2254 R QC M0010 XAD-2 TB

Lab Sample ID: 140-10863-25

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 14:32	1
Surrogate									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	74		50 - 200				03/05/18 04:38	03/09/18 14:32	1

Client Sample ID: H-2255,2256,2257 R QC M0010 PROOF

Lab Sample ID: 140-10863-26

BLANK

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Sample Container: Air Train

Method: 8321A - PFOA and PFOS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA	0.0948		0.0250	0.0250	ug/Sample		03/05/18 04:38	03/09/18 14:35	1
Surrogate									
	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	88		50 - 200				03/05/18 04:38	03/09/18 14:35	1

TestAmerica Knoxville

Default Detection Limits

Client: Chemours Company FC, LLC The

TestAmerica Job ID: 140-10863-1

Project/Site: Polymer Processing Aid Emissions Test

Method: 8321A - HFPO-DA

Prep: None

Analyte	RL	MDL	Units	Method
HFPO-DA	0.00250	0.00128	ug/Sample	8321A

Method: 8321A - PFOA and PFOS

Prep: None

Analyte	RL	MDL	Units	Method
HFPO-DA	0.0250	0.0250	ug/Sample	8321A
HFPO-DA	0.100	0.100	ug/Sample	8321A

TestAmerica Knoxville

Surrogate Summary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Method: 8321A - HFPO-DA

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA

(50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
140-10863-3	H-2205 R1 M0010 IMP COND	91
140-10863-7	H-2212 R2 M0010 IMP COND	89
140-10863-11	H-2226 R4 M0010 IMP COND	92
140-10863-15	H-2233 R5 M0010 IMP COND	88
140-10863-19	H-2247 R QC M0010 IMP COND	69
140-10863-21	H-2250 R QC M0010 DI WATEF	81
LCS 280-406765/2-A	Lab Control Sample	90
LCSD 280-406765/14-A	Lab Control Sample Dup	92
LLCS 280-406765/15-A	Lab Control Sample	87
MB 280-406765/1-A	Method Blank	94

Surrogate Legend

HFPODA = 13C3 HFPO-DA

Method: 8321A - PFOA and PFOS

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA

(50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
140-10863-1	H-2201,2202 R1 M0010 FH	30 X
140-10863-1	H-2201,2202 R1 M0010 FH	79 D
140-10863-2	H-2203,2204,2206 R1 M0010 BI	4 X
140-10863-2	H-2203,2204,2206 R1 M0010 BI	69
140-10863-2	H-2203,2204,2206 R1 M0010 BI	70 D
140-10863-2 - DL	H-2203,2204,2206 R1 M0010 BI	51 D
140-10863-4	H-2207 R1 M0010 XAD-2	61
140-10863-5	H-2208,2209 R2 M0010 FH	26 X
140-10863-5	H-2208,2209 R2 M0010 FH	86 D
140-10863-6	H-2210,2211,2213 R2 M0010 BI	4 X
140-10863-6	H-2210,2211,2213 R2 M0010 BI	66
140-10863-6	H-2210,2211,2213 R2 M0010 BI	69 D
140-10863-6 - DL	H-2210,2211,2213 R2 M0010 BI	54 D
140-10863-8	H-2214 R2 M0010 XAD-2	72
140-10863-9	H-2222,2223 R4 M0010 FH	24 X
140-10863-9	H-2222,2223 R4 M0010 FH	76 D
140-10863-10	H-2224,2225,2227 R4 M0010 BI	58
140-10863-10	H-2224,2225,2227 R4 M0010 BI	75
140-10863-10	H-2224,2225,2227 R4 M0010 BI	64 D
140-10863-12	H-2228 R4 M0010 XAD-2	63
140-10863-13	H-2229,2230 R5 M0010 FH	28 X
140-10863-13	H-2229,2230 R5 M0010 FH	77 D
140-10863-14	H-2231,2232,2234 R5 M0010 BI	71
140-10863-14	H-2231,2232,2234 R5 M0010 BI	75
140-10863-16	H-2235 R5 M0010 XAD-2	66
140-10863-17	H-2243,2244 R QC M0010 FH E	66
140-10863-17	H-2243,2244 R QC M0010 FH E	70 D
140-10863-18	H-2245,2246,2248 R QC M001C	70
140-10863-18	H-2245,2246,2248 R QC M001C	66 D

TestAmerica Knoxville

Surrogate Summary

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Method: 8321A - PFOA and PFOS (Continued)

Matrix: Air

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

HFPODA (50-200)

Lab Sample ID	Client Sample ID	HFPODA (50-200)
140-10863-20	H-2249 R QC M0010 XAD-2 BT	67
140-10863-22	H-2251 R QC M0010 MEOH WI	73
140-10863-23	H-2252 R QC M0010 XAD-2 RB	27 X
140-10863-24	H-2253 R QC M0010 MEOH WI	74
140-10863-25	H-2254 R QC M0010 XAD-2 TB	74
140-10863-26	H-2255,2256,2257 R QC M001C	88
DLCK 280-404345/13	Lab Control Sample	104
LCS 280-406763/2-A	Lab Control Sample	77
LCS 280-406764/2-A	Lab Control Sample	72
MB 280-406763/1-A	Method Blank	69
MB 280-406764/1-A	Method Blank	64

Surrogate Legend

HFPODA = 13C3 HFPO-DA

TestAmerica Knoxville

QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Method: 8321A - HFPO-DA

Lab Sample ID: MB 280-406765/1-A

Matrix: Air

Analysis Batch: 407567

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
HFPO-DA	ND		0.00250	0.000128	ug/Sample		03/11/18 10:52	03/12/18 09:16	1
Surrogate									
13C3 HFPO-DA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
	94		50 - 200				03/11/18 10:52	03/12/18 09:16	1

Lab Sample ID: LCS 280-406765/2-A

Matrix: Air

Analysis Batch: 407567

Analyte	Spike		LCS		Unit	D	%Rec	%Rec.
	Added	Result	Qualifier	ug/Sample				
HFPO-DA	0.0500	0.05486			ug/Sample	110	50 - 150	
Surrogate	LCS		LCS					
13C3 HFPO-DA	%Recovery	Qualifier	Limits					
	90		50 - 200					

Lab Sample ID: LCSD 280-406765/14-A

Matrix: Air

Analysis Batch: 407567

Analyte	Spike	LCSD			Proposed LCSD			%Rec.	RPD
	Added	Result	Qualifier	Unit	D	%Rec	Limits		
HFPO-DA	0.0500	0.05420		ug/Sample		108	50 - 150		1
<i>Surrogate</i>									
13C3 HFPO-DA	92		50 - 200						

Lab Sample ID: LLCS 280-406765/15-A

Matrix: Air

Analysis Batch: 407567

Analyte	Spike Added			LLCS Result	LLCS Qualifier	Unit	D	% Rec	% Rec.		
	0.00500	0.004384	ug/Sample								
Surrogate	LLCS		Limits	% Recovery	Qualifier						
13C3 HEPO-DA	87		50 - 200								

Method: 8321A - PFOA and PFOS

Lab Sample ID: DL GK 280-404345/13

Emissions
Matrix-Air

Analysis Batch: 404345

Analyte	Spike Added	DLCK			% Rec. Limits		
		Result	Qualifier	Unit			
HFPO-DA	0.250	0.2255		ug/L	90	70 - 130	
DLCK							
Surrogate	% Recovery	Qualifier	Limits				
13C3_HFPO-DA	104		50 - 200				

TestAmerica Knoxville

QC Sample Results

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Method: 8321A - PFOA and PFOS (Continued)

Lab Sample ID: MB 280-406763/1-A

Matrix: Air

Analysis Batch: 407389

Analyte	MB	MB				D	Prepared	Analyzed	Dil Fac
	Result	Qualifier	RL	MDL	Unit				
HFPO-DA	ND		0.0250	0.0250	ug/Sample		03/05/18 14:00	03/09/18 12:05	1
Surrogate									
13C3 HFPO-DA	MB	MB				D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier	Limits						
	69		50 - 200				03/05/18 14:00	03/09/18 12:05	1

Lab Sample ID: LCS 280-406763/2-A

Matrix: Air

Analysis Batch: 407389

Analyte	Spike	LCS	LCS				D	%Rec	Limits
	Added	Result	Qualifier	Unit	ug/Sample				
HFPO-DA	0.500	0.4835						97	50 - 150
Surrogate									
13C3 HFPO-DA	LCS	LCS				D	%Rec	Limits	
	%Recovery	Qualifier	Limits						
	77		50 - 200						

Lab Sample ID: MB 280-406764/1-A

Matrix: Air

Analysis Batch: 407390

Analyte	MB	MB				D	Prepared	Analyzed	Dil Fac
	Result	Qualifier	RL	MDL	Unit				
HFPO-DA	ND		0.200	0.200	ug/Sample		03/05/18 04:38	03/09/18 13:04	1
Surrogate									
13C3 HFPO-DA	MB	MB				D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier	Limits						
	64		50 - 200				03/05/18 04:38	03/09/18 13:04	1

Lab Sample ID: LCS 280-406764/2-A

Matrix: Air

Analysis Batch: 407390

Analyte	Spike	LCS	LCS				D	%Rec	Limits
	Added	Result	Qualifier	Unit	ug/Sample				
HFPO-DA	4.00	3.498						87	50 - 150
Surrogate									
13C3 HFPO-DA	LCS	LCS				D	%Rec	Limits	
	%Recovery	Qualifier	Limits						
	72		50 - 200						

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406763

% Rec.

Prepared Analyzed Dil Fac

03/05/18 14:00 03/09/18 12:05 1

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 406764

% Rec.

Prepared Analyzed Dil Fac

03/05/18 04:38 03/09/18 13:04 1

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 406764

% Rec.

Prepared Analyzed Dil Fac

03/05/18 04:38 03/09/18 13:04 1

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2201,2202 R1 M0010 FH

Lab Sample ID: 140-10863-1

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	300 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:34	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	300 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		50			407565	03/12/18 08:33	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2203,2204,2206 R1 M0010 BH

Lab Sample ID: 140-10863-2

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:53	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		1			407391	03/09/18 14:42	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		2			407566	03/12/18 09:06	AGCM	TAL DEN
Total/NA	Prep	None	DL		1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A	DL	50			408337	03/19/18 13:23	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2205 R1 M0010 IMP COND

Lab Sample ID: 140-10863-3

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.02 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:48	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2207 R1 M0010 XAD-2

Lab Sample ID: 140-10863-4

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407566	03/12/18 08:53	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2208,2209 R2 M0010 FH

Lab Sample ID: 140-10863-5

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:41	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		50			407565	03/12/18 08:37	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2210,2211,2213 R2 M0010 BH

Lab Sample ID: 140-10863-6

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:59	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		1			407391	03/09/18 14:45	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		4			407566	03/12/18 09:09	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None	DL		1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A	DL	50			408337	03/19/18 13:26	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2212 R2 M0010 IMP COND

Lab Sample ID: 140-10863-7

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.02 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:51	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2214 R2 M0010 XAD-2

Lab Sample ID: 140-10863-8

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407566	03/12/18 08:56	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2222,2223 R4 M0010 FH

Lab Sample ID: 140-10863-9

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:44	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		50			407565	03/12/18 08:40	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2224,2225,2227 R4 M0010 BH

Lab Sample ID: 140-10863-10

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:06	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		1			407391	03/09/18 14:48	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		5			407566	03/12/18 08:59	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2226 R4 M0010 IMP COND

Lab Sample ID: 140-10863-11

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.02 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:55	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2228 R4 M0010 XAD-2

Lab Sample ID: 140-10863-12

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:09	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2229,2230 R5 M0010 FH

Lab Sample ID: 140-10863-13

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:47	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	200 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		50			407565	03/12/18 08:43	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2231,2232,2234 R5 M0010 BH

Lab Sample ID: 140-10863-14

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:16	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			0.00025 Sample	50 mL	407095	03/07/18 09:47		TAL DEN
Total/NA	Analysis	8321A		1			407391	03/09/18 14:51	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2233 R5 M0010 IMP COND

Lab Sample ID: 140-10863-15

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			0.02 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:58	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2235 R5 M0010 XAD-2

Lab Sample ID: 140-10863-16

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:19	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2243,2244 R QC M0010 FH BT

Lab Sample ID: 140-10863-17

Matrix: Air

Date Collected: 03/02/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2243,2244 R QC M0010 FH BT

Lab Sample ID: 140-10863-17

Matrix: Air

Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			407389	03/09/18 12:51	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		2			407565	03/12/18 08:46	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2245,2246,2248 R QC M0010 BH BT

Lab Sample ID: 140-10863-18

Matrix: Air

Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:22	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		2			407566	03/12/18 09:03	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2247 R QC M0010 IMP COND BT

Lab Sample ID: 140-10863-19

Matrix: Air

Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 10:01	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2249 R QC M0010 XAD-2 BT

Lab Sample ID: 140-10863-20

Matrix: Air

Date Collected: 03/02/18 00:00
Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:25	AGCM	TAL DEN
		Instrument ID: LC_LCMS7								

Client Sample ID: H-2250 R QC M0010 DI WATER RB

Lab Sample ID: 140-10863-21

Matrix: Air

Date Collected: 03/01/18 00:00
Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2250 R QC M0010 DI WATER RB

Lab Sample ID: 140-10863-21

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			407567	03/12/18 10:04	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: H-2251 R QC M0010 MEOH WITH 5% NH4OH RB

Lab Sample ID: 140-10863-22

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:54	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: H-2252 R QC M0010 XAD-2 RB

Lab Sample ID: 140-10863-23

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:29	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: H-2253 R QC M0010 MEOH WITH 5% HN4OH TB

Lab Sample ID: 140-10863-24

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:57	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: H-2254 R QC M0010 XAD-2 TB

Lab Sample ID: 140-10863-25

Matrix: Air

Date Collected: 03/01/18 00:00

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:32	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: H-2255,2256,2257 R QC M0010 PROOF

Lab Sample ID: 140-10863-26

BLANK

Date Collected: 03/01/18 00:00

Matrix: Air

Date Received: 03/03/18 08:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 14:35	AGCM	TAL DEN

Instrument ID: LC_LCMS7

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406763/1-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:05	AGCM	TAL DEN

Instrument ID: LC_LCMS7

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406764/1-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:04	AGCM	TAL DEN

Instrument ID: LC_LCMS7

Client Sample ID: Method Blank

Lab Sample ID: MB 280-406765/1-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:16	AGCM	TAL DEN

Instrument ID: LC_LCMS7

Client Sample ID: Lab Control Sample

Lab Sample ID: DLCK 280-404345/13

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8321A		1			404345	02/08/18 13:38	AGCM	TAL DEN

Instrument ID: LC_LCMS7

TestAmerica Knoxville

Lab Chronicle

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406763/2-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	50 mL	406763	03/05/18 14:00		TAL DEN
Total/NA	Analysis	8321A		1			407389	03/09/18 12:08	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406764/2-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	400 mL	406764	03/05/18 04:38		TAL DEN
Total/NA	Analysis	8321A		1			407390	03/09/18 13:07	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 280-406765/2-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:19	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 280-406765/14-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:22	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Client Sample ID: Lab Control Sample

Lab Sample ID: LLCS 280-406765/15-A

Date Collected: N/A

Matrix: Air

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	None			1 Sample	5 mL	406765	03/11/18 10:52	HMA	TAL DEN
Total/NA	Analysis	8321A		1			407567	03/12/18 09:25	AGCM	TAL DEN
Instrument ID: LC_LCMS7										

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Knoxville

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The
Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Laboratory: TestAmerica Knoxville

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
	AFCEE		N/A	
ANAB	DoD ELAP		L2311	02-13-19
Arkansas DEQ	State Program	6	88-0688	06-16-18
California	State Program	9	2423	06-30-18
Colorado	State Program	8	TN00009	02-28-19
Connecticut	State Program	1	PH-0223	09-30-19
Florida	NELAP	4	E87177	06-30-18
Georgia	State Program	4	906	04-13-20
Hawaii	State Program	9	N/A	04-13-18
Kansas	NELAP	7	E-10349	10-31-18
Kentucky (DW)	State Program	4	90101	12-31-18
Louisiana	NELAP	6	83979	06-30-18
Louisiana (DW)	NELAP	6	LA160005	12-31-18
Maryland	State Program	3	277	03-31-19
Michigan	State Program	5	9933	04-13-20
Nevada	State Program	9	TN00009	07-31-18
New Jersey	NELAP	2	TN001	06-30-18
New York	NELAP	2	10781	03-31-18
North Carolina (DW)	State Program	4	21705	07-31-18
North Carolina (WV/SW)	State Program	4	64	12-31-18
Ohio VAP	State Program	5	CL0059	11-22-18
Oklahoma	State Program	6	9415	08-31-18
Oregon	NELAP	10	TNI0189	01-01-19
Pennsylvania	NELAP	3	68-00576	12-31-18
Tennessee	State Program	4	2014	04-13-20
Texas	NELAP	6	T104704380-16-9	08-31-18
US Fish & Wildlife	Federal		LE-058448-0	07-31-18
USDA	Federal		P330-16-00262	08-20-19
Utah	NELAP	8	TN00009	07-31-18
Virginia	NELAP	3	460176	09-14-18
Washington	State Program	10	C593	01-19-19
West Virginia (DW)	State Program	3	9955C	12-31-18
West Virginia DEP	State Program	3	345	04-30-18
Wisconsin	State Program	5	998044300	08-31-18

Laboratory: TestAmerica Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
A2LA	DoD ELAP		2907.01	10-31-19
A2LA	ISO/IEC 17025		2907.01	10-31-19
Alabama	State Program	4	40730	09-30-12 *
Alaska (UST)	State Program	10	UST-30	01-08-19
Arizona	State Program	9	AZ0713	12-20-18
Arkansas DEQ	State Program	6	88-0687	06-01-18
California	State Program	9	2513	01-18-19
Connecticut	State Program	1	PH-0686	09-30-18
Florida	NELAP	4	E87667	06-30-18
Georgia	State Program	4	N/A	01-08-18 *
Illinois	NELAP	5	200017	04-30-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Knoxville

Accreditation/Certification Summary

Client: Chemours Company FC, LLC The

Project/Site: Polymer Processing Aid Emissions Test

TestAmerica Job ID: 140-10863-1

Laboratory: TestAmerica Denver (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Iowa	State Program	7	370	12-01-18
Kansas	NELAP	7	E-10166	04-30-18
Louisiana	NELAP	6	02096	06-30-18
Maine	State Program	1	CO0002	03-03-19
Minnesota	NELAP	5	8-999-405	12-31-18
Nevada	State Program	9	CO0026	07-31-18
New Hampshire	NELAP	1	205310	04-28-18
New Jersey	NELAP	2	CO004	06-30-18
New York	NELAP	2	11964	04-01-18
North Carolina (WV/SW)	State Program	4	358	12-31-18
North Dakota	State Program	8	R-034	01-08-19
Oklahoma	State Program	6	8614	08-31-18
Oregon	NELAP	10	4025	01-08-19
Pennsylvania	NELAP	3	68-00664	07-31-18
South Carolina	State Program	4	72002001	01-08-19
Texas	NELAP	6	T104704183-17-14	09-30-18
USDA	Federal		P330-16-00397	12-15-19
Utah	NELAP	8	CO00026	07-31-18
Virginia	NELAP	3	460232	06-14-18
Washington	State Program	10	C583	08-03-18
West Virginia DEP	State Program	3	354	12-31-18
Wisconsin	State Program	5	999615430	08-31-18
Wyoming (UST)	A2LA	8	2907.01	10-31-19

TestAmerica Knoxville

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Instrument ID: LC_LCMS7

Analysis Batch Number: 404345

Lab Sample ID: STD001 280-404345/3 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:05

Lab File ID: hfpo718B08034.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Assign Peak	meyera	02/08/18 15:19

Lab Sample ID: STD002 280-404345/4 IC

Client Sample ID: _____

Date Analyzed: 02/08/18 13:08

Lab File ID: hfpo718B08035.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:19

Lab Sample ID: DLCK 280-404345/13

Client Sample ID: _____

Date Analyzed: 02/08/18 13:38

Lab File ID: hfpo718B08044.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	02/08/18 15:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 140-10863-1

SDG No.: _____

Instrument ID: LC_LCMS7Analysis Batch Number: 407389Lab Sample ID: 140-10863-22Client Sample ID: H-2251 R QC M0010 MEOH WITH 5% NH4OH RBDate Analyzed: 03/09/18 12:54Lab File ID: hfpo718C09086.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.04	Assign Peak	meyera	03/09/18 13:17

8321A

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Instrument ID: LC_LCMS7

Analysis Batch Number: 407390

Lab Sample ID: 140-10863-2

Client Sample ID: H-2203,2204,2206 R1 M0010 BH

Date Analyzed: 03/09/18 13:53

Lab File ID: hfpo718C09104.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.08	Baseline	meyera	03/12/18 07:23
13C3 HFPO-DA	1.10	Baseline	meyera	03/12/18 07:23

Lab Sample ID: 140-10863-6

Client Sample ID: H-2210,2211,2213 R2 M0010 BH

Date Analyzed: 03/09/18 13:59

Lab File ID: hfpo718C09106.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
13C3 HFPO-DA	1.08	Baseline	meyera	03/12/18 07:23
HFPO-DA	1.10	Baseline	meyera	03/12/18 07:23

Lab Sample ID: 140-10863-12

Client Sample ID: H-2228 R4 M0010 XAD-2

Date Analyzed: 03/09/18 14:09

Lab File ID: hfpo718C09109.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.06	Baseline	meyera	03/12/18 07:24

Lab Sample ID: 140-10863-16

Client Sample ID: H-2235 R5 M0010 XAD-2

Date Analyzed: 03/09/18 14:19

Lab File ID: hfpo718C09112.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.04	Assign Peak	meyera	03/12/18 07:24

Lab Sample ID: 140-10863-20

Client Sample ID: H-2249 R QC M0010 XAD-2 BT

Date Analyzed: 03/09/18 14:25

Lab File ID: hfpo718C09114.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.03	Assign Peak	meyera	03/12/18 07:25

8321A

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 140-10863-1

SDG No.: _____

Instrument ID: LC_LCMS7Analysis Batch Number: 407390Lab Sample ID: 140-10863-23Client Sample ID: H-2252 R QC M0010 XAD-2 RBDate Analyzed: 03/09/18 14:29Lab File ID: hfpo718C09115.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.03	Assign Peak	meyera	03/12/18 07:25

Lab Sample ID: 140-10863-25Client Sample ID: H-2254 R QC M0010 XAD-2 TBDate Analyzed: 03/09/18 14:32Lab File ID: hfpo718C09116.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.03	Assign Peak	meyera	03/12/18 07:25

8321A

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica DenverJob No.: 140-10863-1

SDG No.: _____

Instrument ID: LC_LCMS7Analysis Batch Number: 407391Lab Sample ID: 140-10863-14Client Sample ID: H-2231,2232,2234 R5 M0010 BHDate Analyzed: 03/09/18 14:51Lab File ID: hfpo718C09122.d GC Column: Synergi Hydro ID: _____

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
HFPO-DA	1.03	Baseline	meyera	03/12/18 07:26

8321A

8321A_HFPO_Du

HFPO-DA

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Matrix: Air Level: Low

GC Column (1): Synergi Hyd ID: _____

Client Sample ID	Lab Sample ID	HFPEDA #
H-2205 R1 M0010 IMP COND	140-10863-3	91
H-2212 R2 M0010 IMP COND	140-10863-7	89
H-2226 R4 M0010 IMP COND	140-10863-11	92
H-2233 R5 M0010 IMP COND	140-10863-15	88
H-2247 R QC M0010 IMP COND BT	140-10863-19	69
H-2250 R QC M0010 DI WATER RB	140-10863-21	81
	MB 280-406765/1-A	94
	LCS 280-406765/2-A	90
	LCSD 280-406765/14-A	92
	LLCS 280-406765/15-A	87

HFPEDA = 13C3 HFPO-DA

QC LIMITS

50-200

Column to be used to flag recovery values

FORM II 8321A

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12020.d

Lab ID: LCS 280-406765/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LCS CONCENTRATION (ug/Sample)	LCS % REC	QC LIMITS REC	#
HFPO-DA	0.0500	0.05486	110	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12021.d

Lab ID: LCSD 280-406765/14-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LCSD CONCENTRATION (ug/Sample)	LCSD REC	%	QC LIMITS		#
					RPD	RPD	
HFPO-DA	0.0500	0.05420	108	1	35	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.: _____

Matrix: Air Level: Low Lab File ID: hfpo718C12022.d

Lab ID: LLCS 280-406765/15-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/Sample)	LLCS CONCENTRATION (ug/Sample)	LLCS REC	QC LIMITS REC	#
HFPO-DA	0.00500	0.004384	88	50-150	

Column to be used to flag recovery and RPD values

FORM III 8321A

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Denver Job No.: 140-10863-1
SDG No.:
Lab File ID: hfpo718C12019.d Lab Sample ID: MB 280-406765/1-A
Matrix: Air Date Extracted: 03/11/2018 10:52
Instrument ID: LC_LCMS7 Date Analyzed: 03/12/2018 09:16
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 280-406765/2-A	hfpo718C120 20.d	03/12/2018 09:19
	LCSD 280-406765/14-A	hfpo718C120 21.d	03/12/2018 09:22
	LLCS 280-406765/15-A	hfpo718C120 22.d	03/12/2018 09:25
H-2205 R1 M0010 IMP COND	140-10863-3	hfpo718C120 29.d	03/12/2018 09:48
H-2212 R2 M0010 IMP COND	140-10863-7	hfpo718C120 30.d	03/12/2018 09:51
H-2226 R4 M0010 IMP COND	140-10863-11	hfpo718C120 31.d	03/12/2018 09:55
H-2233 R5 M0010 IMP COND	140-10863-15	hfpo718C120 32.d	03/12/2018 09:58
H-2247 R QC M0010 IMP COND BT	140-10863-19	hfpo718C120 33.d	03/12/2018 10:01
H-2250 R QC M0010 DI WATER RB	140-10863-21	hfpo718C120 34.d	03/12/2018 10:04

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2205 R1 M0010 IMP COND Lab Sample ID: 140-10863-3

Matrix: Air Lab File ID: hfpo718C12029.d

Analysis Method: 8321A Date Collected: 03/01/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.02 (Sample) Date Analyzed: 03/12/2018 09:48

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.118	J	0.125	0.00638

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	91		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12029.d
 Lims ID: 140-10863-A-3-A
 Client ID: H-2205 R1 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:48:32 ALS Bottle#: 27 Worklist Smp#: 29
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-3-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 676950 9.07 3280
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 1.000 676950 10.0 3280
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.029 1.056 -0.027 1.000 36295 0.4700 9.0

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12029.d

Injection Date: 12-Mar-2018 09:48:32

Instrument ID: LC_LCMS7

Lims ID: 140-10863-A-3-A

Lab Sample ID: 280-10863-3

Client ID: H-2205 R1 M0010 IMP COND

Operator ID: JBH

ALS Bottle#: 27 Worklist Smp#: 29

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

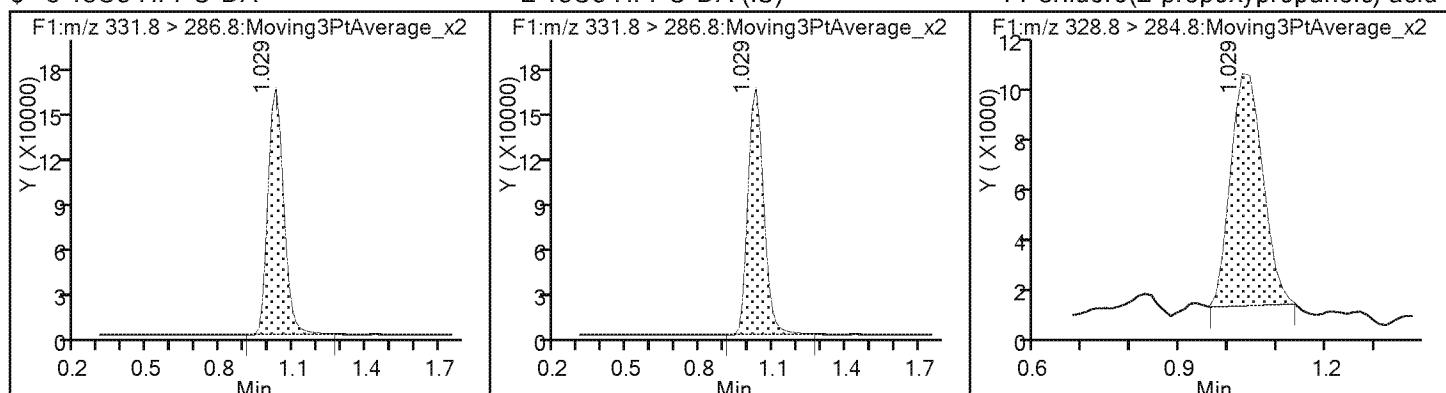
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12029.d
 Lims ID: 140-10863-A-3-A
 Client ID: H-2205 R1 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:48:32 ALS Bottle#: 27 Worklist Smp#: 29
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-3-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.07	90.67

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2212 R2 M0010 IMP COND Lab Sample ID: 140-10863-7

Matrix: Air Lab File ID: hfpo718C12030.d

Analysis Method: 8321A Date Collected: 03/02/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.02 (Sample) Date Analyzed: 03/12/2018 09:51

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	ND		0.125	0.00638

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	89		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12030.d
 Lims ID: 140-10863-A-7-A
 Client ID: H-2212 R2 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:51:46 ALS Bottle#: 28 Worklist Smp#: 30
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-7-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 667447 8.94 2962
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 667447 10.0 2962

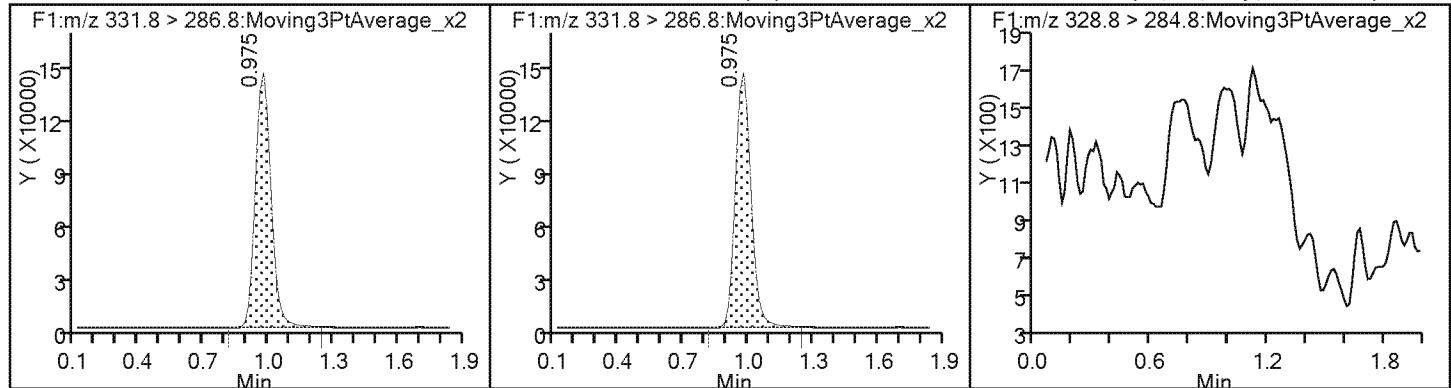
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12030.d
Injection Date: 12-Mar-2018 09:51:46 Instrument ID: LC_LCMS7
Lims ID: 140-10863-A-7-A Lab Sample ID: 280-10863-7
Client ID: H-2212 R2 M0010 IMP COND
Operator ID: JBH ALS Bottle#: 28 Worklist Smp#: 30
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12030.d
 Lims ID: 140-10863-A-7-A
 Client ID: H-2212 R2 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:51:46 ALS Bottle#: 28 Worklist Smp#: 30
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-7-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:03

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.94	89.40

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2226 R4 M0010 IMP COND Lab Sample ID: 140-10863-11

Matrix: Air Lab File ID: hfpo718C12031.d

Analysis Method: 8321A Date Collected: 03/01/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.02 (Sample) Date Analyzed: 03/12/2018 09:55

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.227		0.125	0.00638

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	92		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12031.d
 Lims ID: 140-10863-A-11-A
 Client ID: H-2226 R4 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:55:02 ALS Bottle#: 29 Worklist Smp#: 31
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-11-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 685103 9.18 3116
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 685103 10.0 3116
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 68666 0.9082 25.2

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12031.d

Injection Date: 12-Mar-2018 09:55:02

Instrument ID: LC_LCMS7

Lims ID: 140-10863-A-11-A

Lab Sample ID: 280-10863-11

Client ID: H-2226 R4 M0010 IMP COND

Operator ID: JBH

ALS Bottle#: 29 Worklist Smp#: 31

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

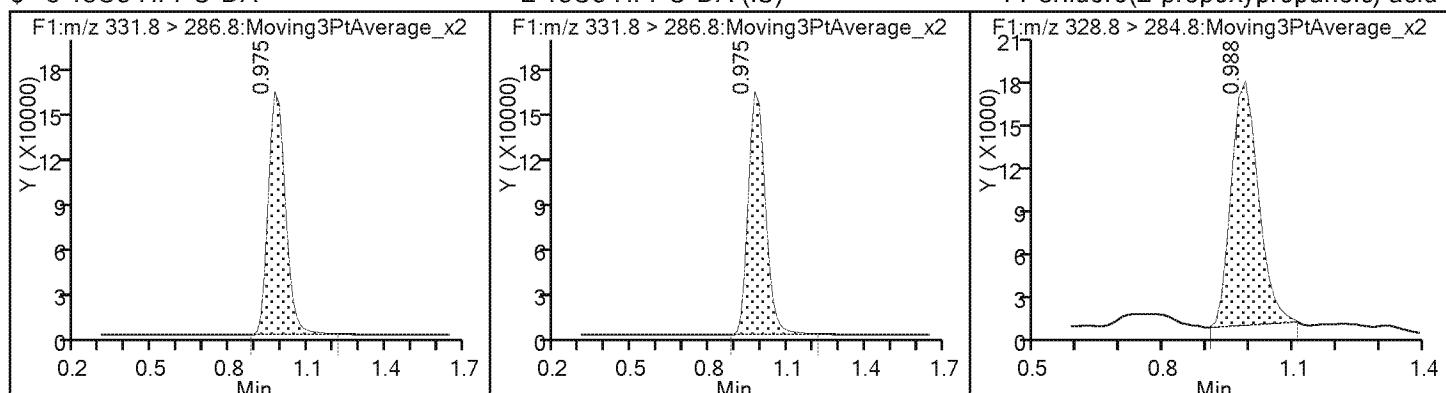
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12031.d
 Lims ID: 140-10863-A-11-A
 Client ID: H-2226 R4 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:55:02 ALS Bottle#: 29 Worklist Smp#: 31
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-11-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.18	91.76

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2233 R5 M0010 IMP COND Lab Sample ID: 140-10863-15

Matrix: Air Lab File ID: hfpo718C12032.d

Analysis Method: 8321A Date Collected: 03/01/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 0.02 (Sample) Date Analyzed: 03/12/2018 09:58

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.250		0.125	0.00638

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	88		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12032.d
 Lims ID: 140-10863-A-15-A
 Client ID: H-2233 R5 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:58:18 ALS Bottle#: 30 Worklist Smp#: 32
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 659295 8.83 2446
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 659295 10.0 2446
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.002 1.056 -0.054 1.000 72566 1.00 26.4

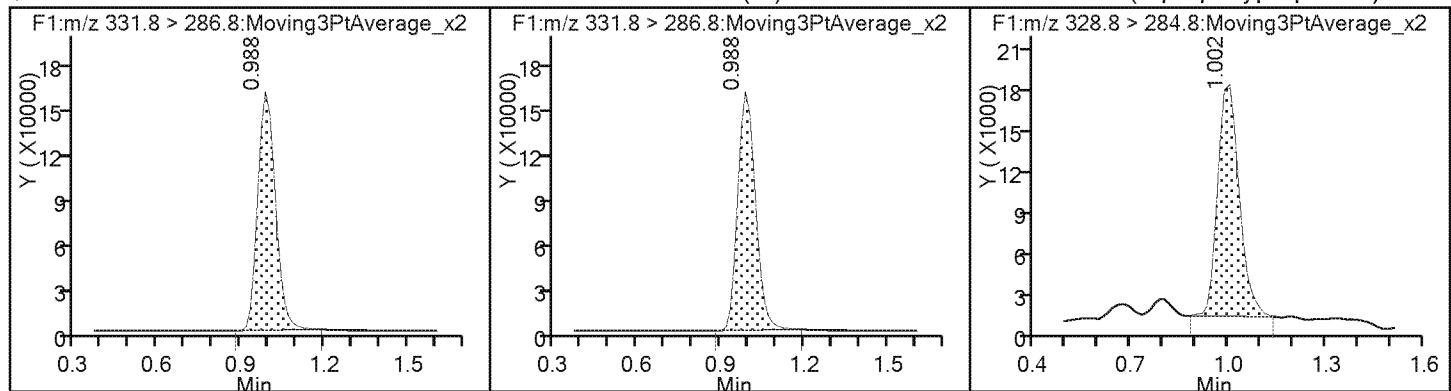
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12032.d
Injection Date: 12-Mar-2018 09:58:18 Instrument ID: LC_LCMS7
Lims ID: 140-10863-A-15-A Lab Sample ID: 280-10863-15
Client ID: H-2233 R5 M0010 IMP COND
Operator ID: JBH ALS Bottle#: 30 Worklist Smp#: 32
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12032.d
 Lims ID: 140-10863-A-15-A
 Client ID: H-2233 R5 M0010 IMP COND
 Sample Type: Client
 Inject. Date: 12-Mar-2018 09:58:18 ALS Bottle#: 30 Worklist Smp#: 32
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:10

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.83	88.31

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2247 R QC M0010 IMP COND BT Lab Sample ID: 140-10863-19

Matrix: Air Lab File ID: hfpo718C12033.d

Analysis Method: 8321A Date Collected: 03/02/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 10:01

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.0106		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	69		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12033.d
 Lims ID: 140-10863-A-19-A
 Client ID: H-2247 R QC M0010 IMP COND BT
 Sample Type: Client
 Inject. Date: 12-Mar-2018 10:01:34 ALS Bottle#: 31 Worklist Smp#: 33
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-19-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 513558 6.88 1874
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 513558 10.0 1874
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.002 1.056 -0.054 1.000 117337 2.11 38.5

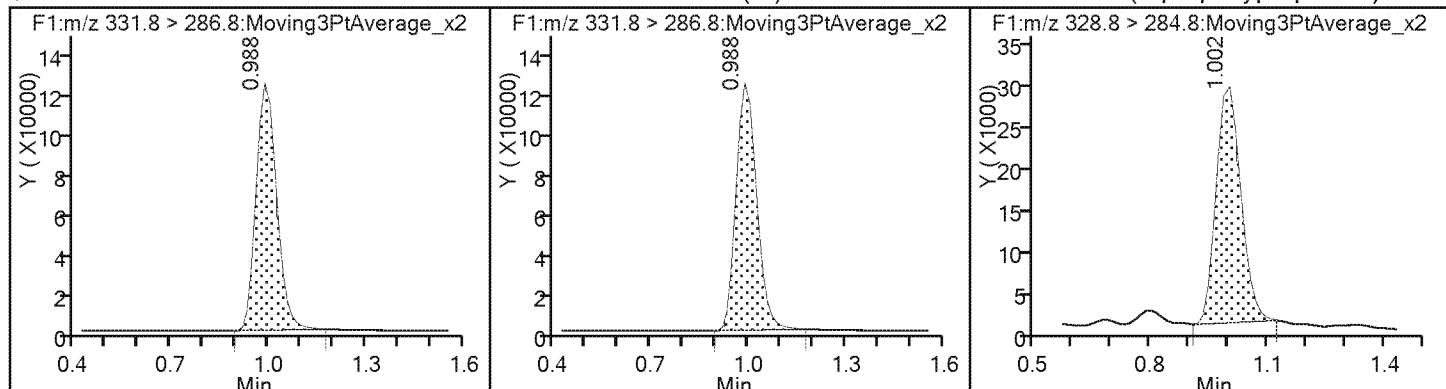
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12033.d
Injection Date: 12-Mar-2018 10:01:34 Instrument ID: LC_LCMS7
Lims ID: 140-10863-A-19-A Lab Sample ID: 280-10863-19
Client ID: H-2247 R QC M0010 IMP COND BT
Operator ID: JBH ALS Bottle#: 31 Worklist Smp#: 33
Injection Vol: 20.0 ul Dil. Factor: 1.0000
Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12033.d
 Lims ID: 140-10863-A-19-A
 Client ID: H-2247 R QC M0010 IMP COND BT
 Sample Type: Client
 Inject. Date: 12-Mar-2018 10:01:34 ALS Bottle#: 31 Worklist Smp#: 33
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-19-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:14

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	6.88	68.79

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: H-2250 R QC M0010 DI WATER RB Lab Sample ID: 140-10863-21

Matrix: Air Lab File ID: hfpo718C12034.d

Analysis Method: 8321A Date Collected: 03/01/2018 00:00

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 10:04

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	ND		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	81		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12034.d
 Lims ID: 140-10863-A-21-A
 Client ID: H-2250 R QC M0010 DI WATER RB
 Sample Type: Client
 Inject. Date: 12-Mar-2018 10:04:50 ALS Bottle#: 32 Worklist Smp#: 34
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-21-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
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\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 605199 8.11 2271
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 605199 10.0 2271

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12034.d

Injection Date: 12-Mar-2018 10:04:50 Instrument ID: LC_LCMS7

Lims ID: 140-10863-A-21-A Lab Sample ID: 280-10863-21

Client ID: H-2250 R QC M0010 DI WATER RB

Operator ID: JBH ALS Bottle#: 32 Worklist Smp#: 34

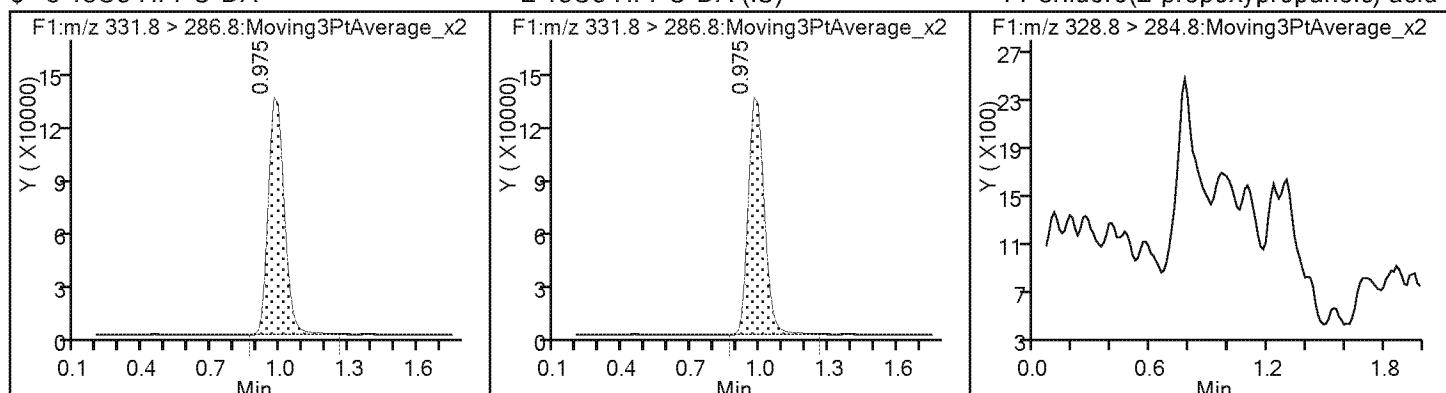
Injection Vol: 20.0 ul Dil. Factor: 1.0000

Method: HFPO Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12034.d
 Lims ID: 140-10863-A-21-A
 Client ID: H-2250 R QC M0010 DI WATER RB
 Sample Type: Client
 Inject. Date: 12-Mar-2018 10:04:50 ALS Bottle#: 32 Worklist Smp#: 34
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: 140-10863-A-21-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:18

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.11	81.06

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 140-10863-1 Analy Batch No.: 404345
SDG No.: _____
Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N
Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6	LVL 7	LVL 8	LVL 9	RT WINDOW	AVG RT
HFPO-DA	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	1.056	0.556 - 1.556	1.056
13C3 HFPO-DA	1.042	1.042	1.042	1.042	1.042	1.042	1.042	1.056	1.056	0.545 - 1.545	1.045

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

Analy Batch No.: 404345

SDG No.:

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1	LVL 2	LVL 3	LVL 4		B	M1	M2								
13C3 HFPO-DA	75771 75244 71284	75964 75940	72010 75039	77000 73687	Ave		74659.8778				2.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 140-10863-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5		B	M1	M2								
HFPO-DA	1.1630 1.1128	1.1250 1.0911	1.0756 1.0665	1.0527 1.0507	1.1211	Lin1	0.0361	1.0638							1.0000		0.9900

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 140-10863-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
13C3 HFPO-DA	Ave	757714 759397	759642 750388	720099 736869	769995 712841	752444	10.0 10.0	10.0 10.0	10.0 10.0	10.0 10.0	10.0

Curve Type Legend:

Ave = Average

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 140-10863-1 Analy Batch No.: 404345

SDG No.: _____

Instrument ID: LC_LCMS7 GC Column: Synergi Hyd ID: _____ Heated Purge: (Y/N) N

Calibration Start Date: 02/08/2018 13:05 Calibration End Date: 02/08/2018 13:31 Calibration ID: 31612

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD001 280-404345/3	hfpo718B08034.d
Level 2	STD002 280-404345/4	hfpo718B08035.d
Level 3	STD003 280-404345/5	hfpo718B08036.d
Level 4	STD004 280-404345/6	hfpo718B08037.d
Level 5	STD005 280-404345/7	hfpo718B08038.d
Level 6	STD006 280-404345/8	hfpo718B08039.d
Level 7	STD007 280-404345/9	hfpo718B08040.d
Level 8	STD008 280-404345/10	hfpo718B08041.d
Level 9	STD009 280-404345/11	hfpo718B08042.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5
HFPO-DA	13CP ODA	Lin1	22031 845082	42730 2046873	77455 3929397	162117 7489478	421775	0.250 10.0	0.500 25.0	1.00 50.0	2.00 100	5.00

Curve Type Legend:

Lin1 = Linear 1/conc ISTD

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08034.d
 Lims ID: std001
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 08-Feb-2018 13:05:38 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L1
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:13 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 757714 10.0 1562

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 757714 10.1 1562

1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 1.056 1.056 0.0 1.000 22031 0.2394 4.4 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-1_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d

Injection Date: 08-Feb-2018 13:05:38

Instrument ID: LC_LCMS7

Lims ID: std001

Client ID:

Operator ID: JBH

ALS Bottle#: 2 Worklist Smp#: 3

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

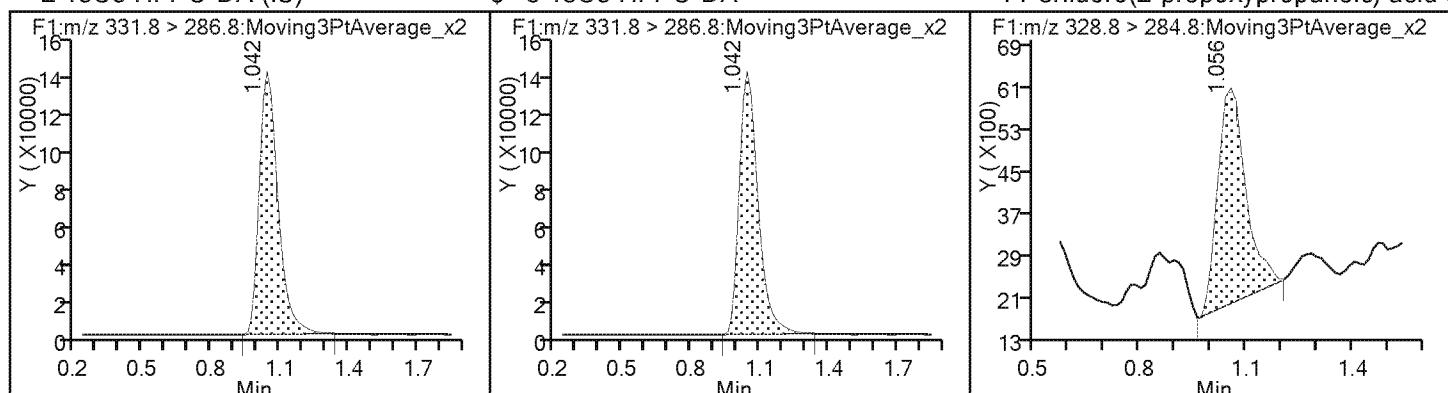
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid (M)



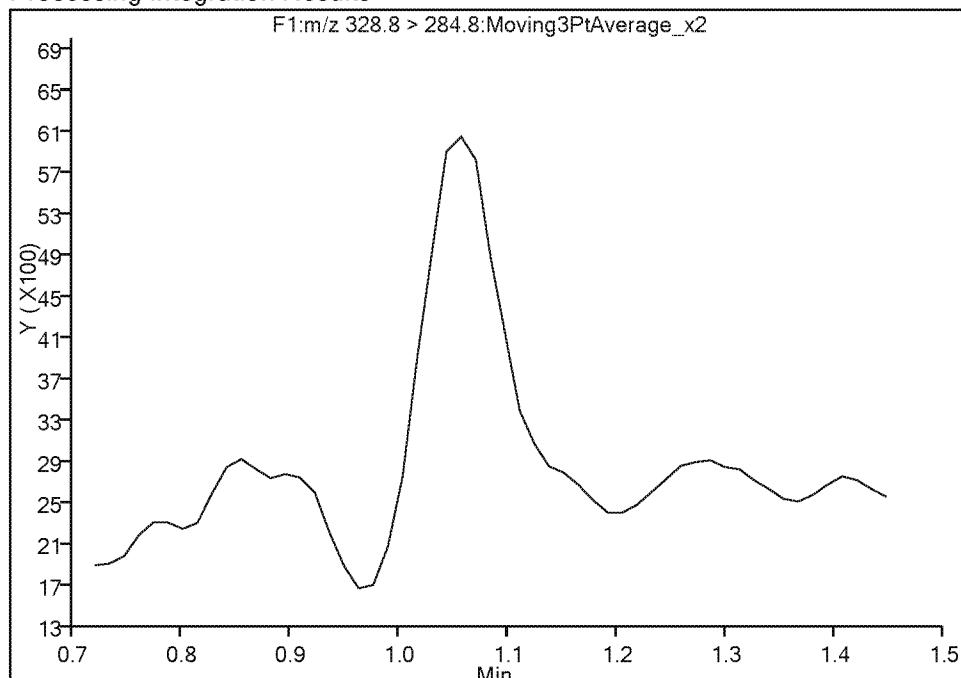
TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08034.d
 Injection Date: 08-Feb-2018 13:05:38 Instrument ID: LC_LCMS7
 Lims ID: std001
 Client ID:
 Operator ID: JBH ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6
 Signal: 1

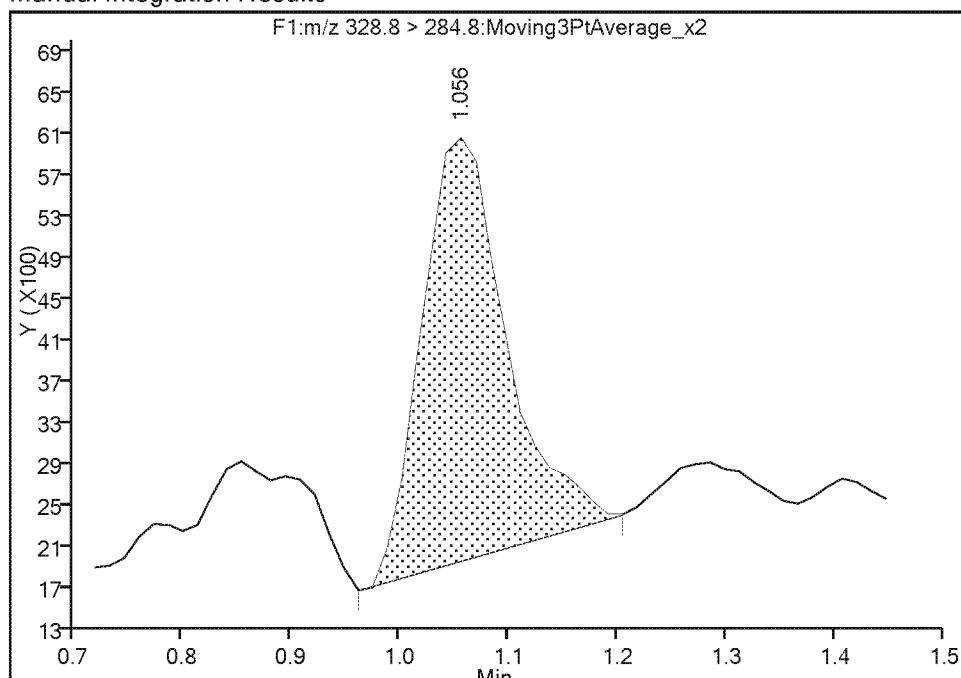
Not Detected
 Expected RT: 1.06

Processing Integration Results



RT: 1.06
 Area: 22031
 Amount: 0.239356
 Amount Units: ug/l

Manual Integration Results



Reviewer: meyera, 08-Feb-2018 15:19:01

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08035.d
 Lims ID: std002
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 08-Feb-2018 13:08:52 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L2
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:16

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.2 1267
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759642 10.0 1267
 1 Perfluoro(2-propoxypropanoic) acid M
 328.8 > 284.8 1.056 1.056 0.0 1.000 42730 0.4948 6.5 M

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

HFPO_CAL-2_00033 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d

Injection Date: 08-Feb-2018 13:08:52

Instrument ID: LC_LCMS7

Lims ID: std002

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 4

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

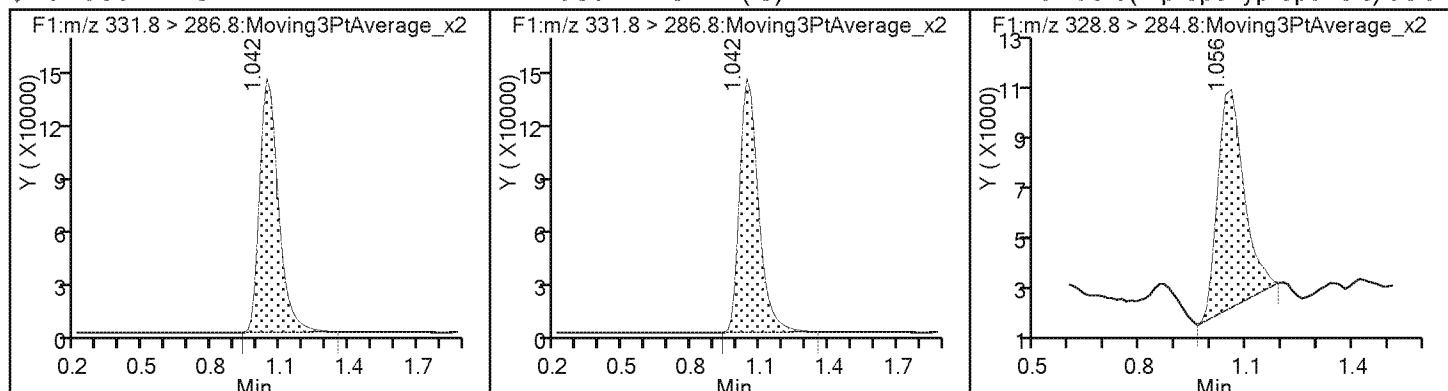
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (M)



TestAmerica Denver

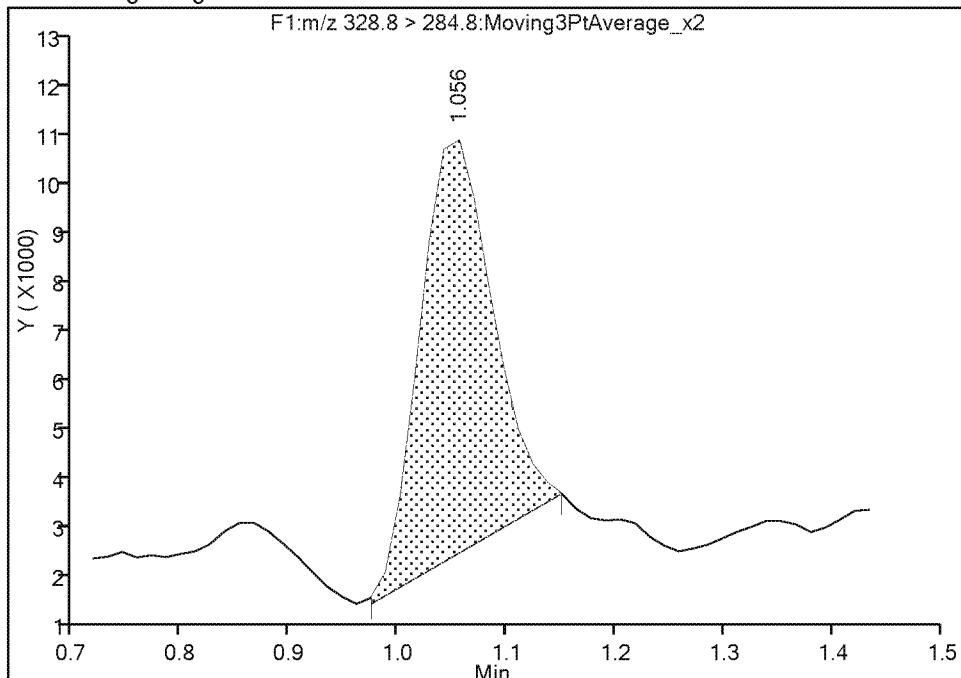
Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08035.d
 Injection Date: 08-Feb-2018 13:08:52 Instrument ID: LC_LCMS7
 Lims ID: std002
 Client ID:
 Operator ID: JBH ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Method: HFPO Limit Group: LC - 8321A_HFPO_Du
 Column: Detector F1:MRM

1 Perfluoro(2-propoxypropanoic) acid, CAS: 13252-13-6

Signal: 1

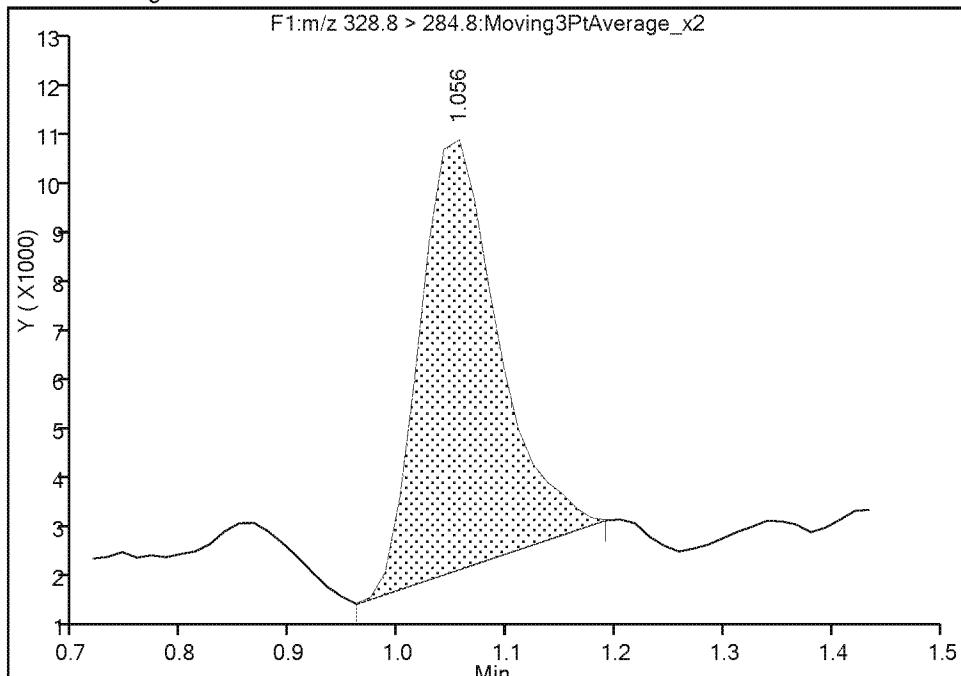
Processing Integration Results

RT: 1.06
 Area: 38092
 Amount: 0.452274
 Amount Units: ug/l



Manual Integration Results

RT: 1.06
 Area: 42730
 Amount: 0.494804
 Amount Units: ug/l



Reviewer: meyera, 08-Feb-2018 15:19:12

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08036.d
 Lims ID: std003
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 08-Feb-2018 13:12:06 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L3
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:14 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 720099 10.0 956

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 720099 9.65 956

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 77455 0.9771 10.6

Reagents:

HFPO_CAL-3_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08036.d

Injection Date: 08-Feb-2018 13:12:06

Instrument ID: LC_LCMS7

Lims ID: std003

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 5

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

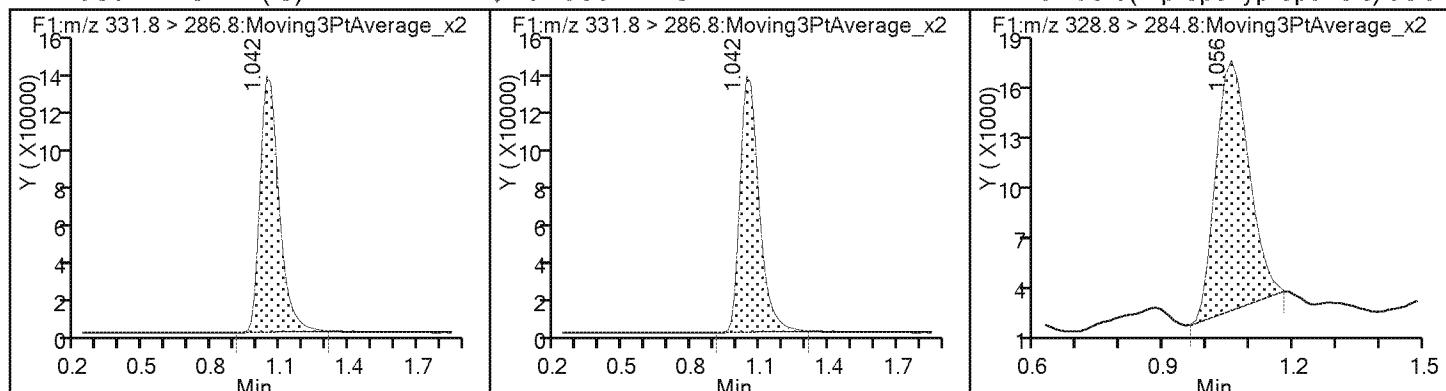
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08037.d
 Lims ID: std004
 Client ID:
 Sample Type: IC Calib Level: 4
 Inject. Date: 08-Feb-2018 13:15:21 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L4
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.3 1154
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 769995 10.0 1154
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 162117 1.95 26.1

Reagents:

HFPO_CAL-4_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08037.d

Injection Date: 08-Feb-2018 13:15:21

Instrument ID: LC_LCMS7

Lims ID: std004

Client ID:

Operator ID: JBH

ALS Bottle#: 5 Worklist Smp#: 6

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

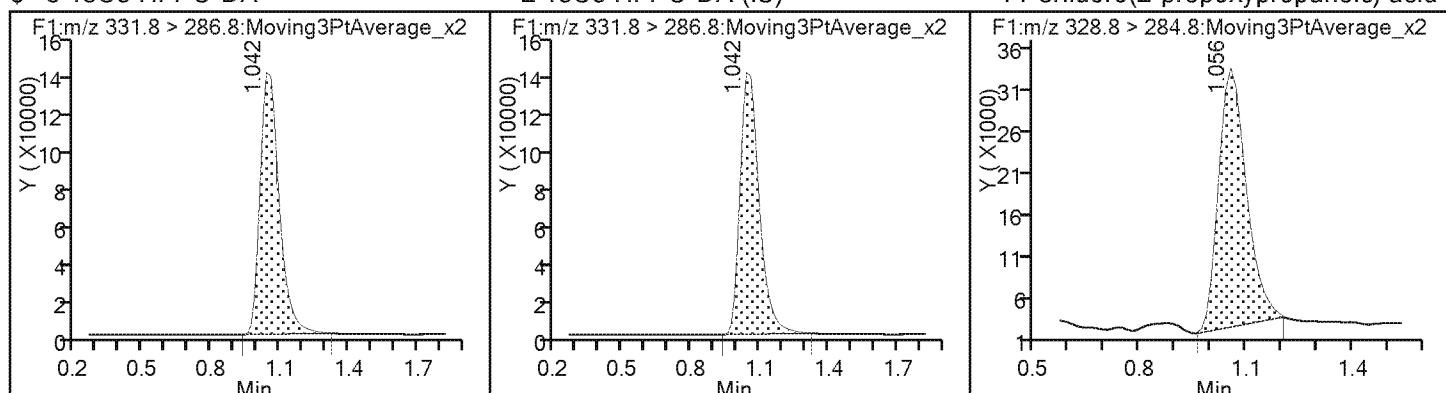
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08038.d
 Lims ID: std005
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 08-Feb-2018 13:18:35 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L5
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:15 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)

331.8 > 286.8 1.042 1.045 -0.003 752444 10.0 1072

\$ 3 13C3 HFPO-DA

331.8 > 286.8 1.042 1.045 -0.003 1.000 752444 10.1 1072

1 Perfluoro(2-propoxypropanoic) acid

328.8 > 284.8 1.056 1.056 0.0 1.000 421775 5.24 66.0

Reagents:

HFPO_CAL-5_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08038.d

Injection Date: 08-Feb-2018 13:18:35

Instrument ID: LC_LCMS7

Lims ID: std005

Client ID:

Operator ID: JBH

ALS Bottle#: 6 Worklist Smp#: 7

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

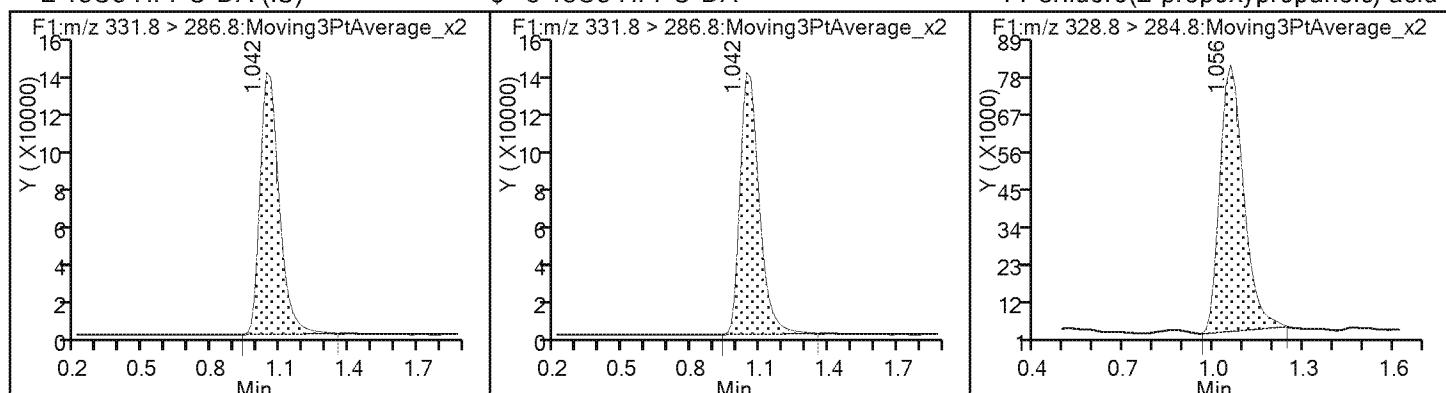
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08039.d
 Lims ID: std006
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 08-Feb-2018 13:21:49 ALS Bottle#: 7 Worklist Smp#: 8
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L6
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.2 1193
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 1.000 759397 10.0 1193
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 845082 10.4 146

Reagents:

HFPO_CAL-6_00080 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08039.d

Injection Date: 08-Feb-2018 13:21:49

Instrument ID: LC_LCMS7

Lims ID: std006

Client ID:

Operator ID: JBH

ALS Bottle#: 7 Worklist Smp#: 8

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

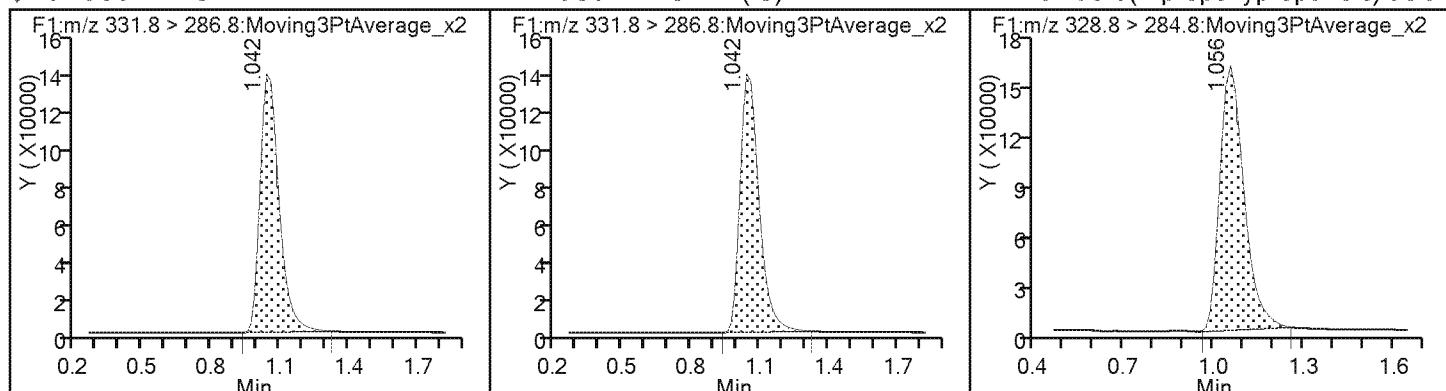
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08040.d
 Lims ID: std007
 Client ID:
 Sample Type: IC Calib Level: 7
 Inject. Date: 08-Feb-2018 13:25:03 ALS Bottle#: 8 Worklist Smp#: 9
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L7
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:16 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.042 1.045 -0.003 750388 10.0 1247
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.042 1.045 -0.003 1.000 750388 10.1 1247
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 2046873 25.6 246

Reagents:

HFPO_CAL-7_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfpo718B08040.d

Injection Date: 08-Feb-2018 13:25:03

Instrument ID: LC_LCMS7

Lims ID: std007

Client ID:

Operator ID: JBH

ALS Bottle#: 8 Worklist Smp#: 9

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

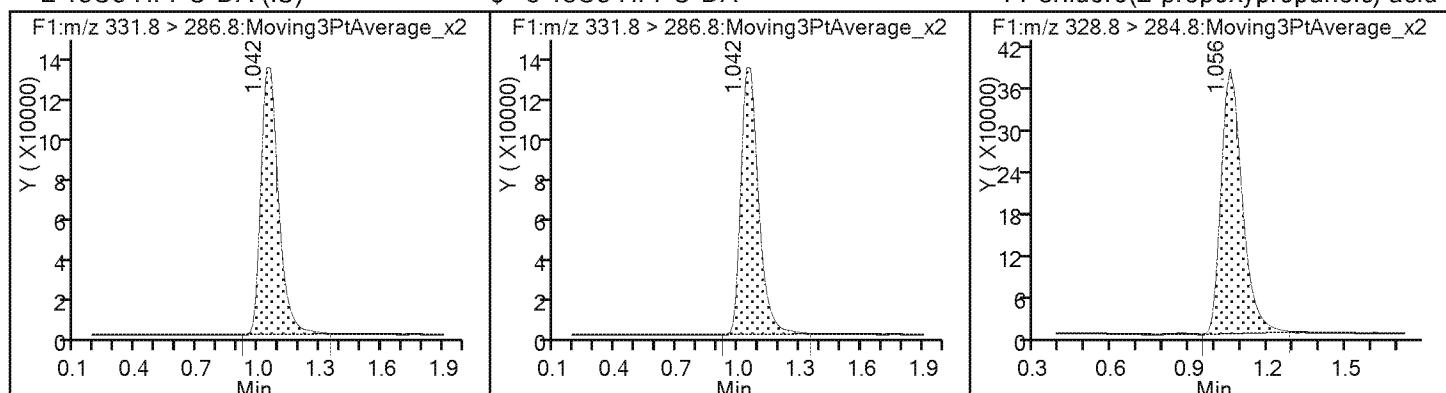
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08041.d
 Lims ID: std008
 Client ID:
 Sample Type: IC Calib Level: 8
 Inject. Date: 08-Feb-2018 13:28:18 ALS Bottle#: 9 Worklist Smp#: 10
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L8
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
331.8 > 286.8 1.056 1.045 0.011 1.000 736869 9.87 1055

* 2 13C3 HFPO-DA (IS)
331.8 > 286.8 1.056 1.045 0.011 1.000 736869 10.0 1055

1 Perfluoro(2-propoxypropanoic) acid
328.8 > 284.8 1.056 1.056 0.0 1.000 3929397 50.1 416

Reagents:

HFPO_CAL-8_00032 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08041.d

Injection Date: 08-Feb-2018 13:28:18

Instrument ID: LC_LCMS7

Lims ID: std008

Client ID:

Operator ID: JBH

ALS Bottle#: 9 Worklist Smp#: 10

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

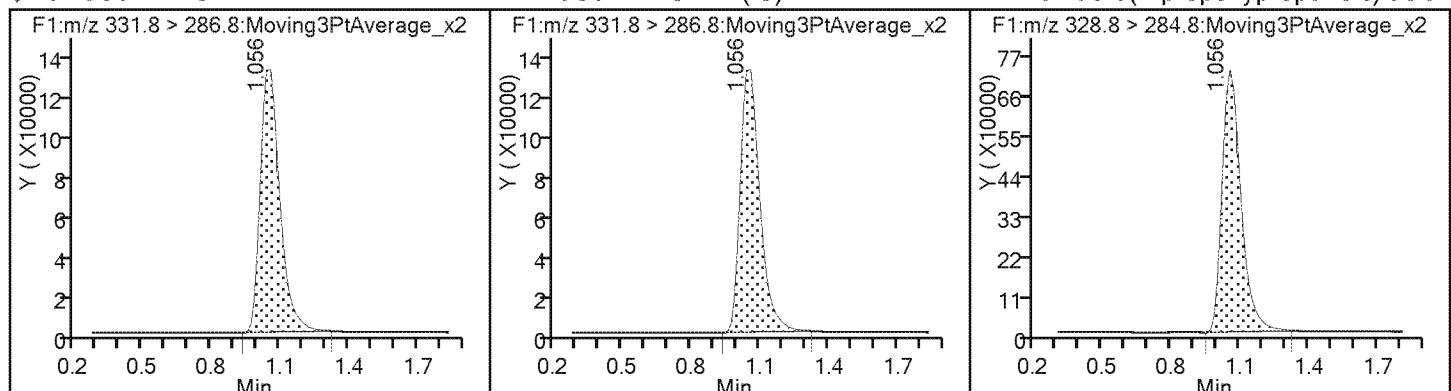
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Lims ID: std009
 Client ID:
 Sample Type: IC Calib Level: 9
 Inject. Date: 08-Feb-2018 13:31:32 ALS Bottle#: 10 Worklist Smp#: 11
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: L9
 Misc. Info.: HFPO18B08
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 08-Feb-2018 15:24:17 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK015

First Level Reviewer: meyera Date: 08-Feb-2018 15:19:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

* 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.056 1.045 0.011 712841 10.0 1141
 \$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.056 1.045 0.011 1.000 712841 9.55 1141
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.056 1.056 0.0 1.000 7489478 98.7 561

Reagents:

HFPO_CAL-9_00001 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180208-67079.b\\hfp0718B08042.d

Injection Date: 08-Feb-2018 13:31:32

Instrument ID: LC_LCMS7

Lims ID: std009

Client ID:

Operator ID: JBH

ALS Bottle#: 10 Worklist Smp#: 11

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

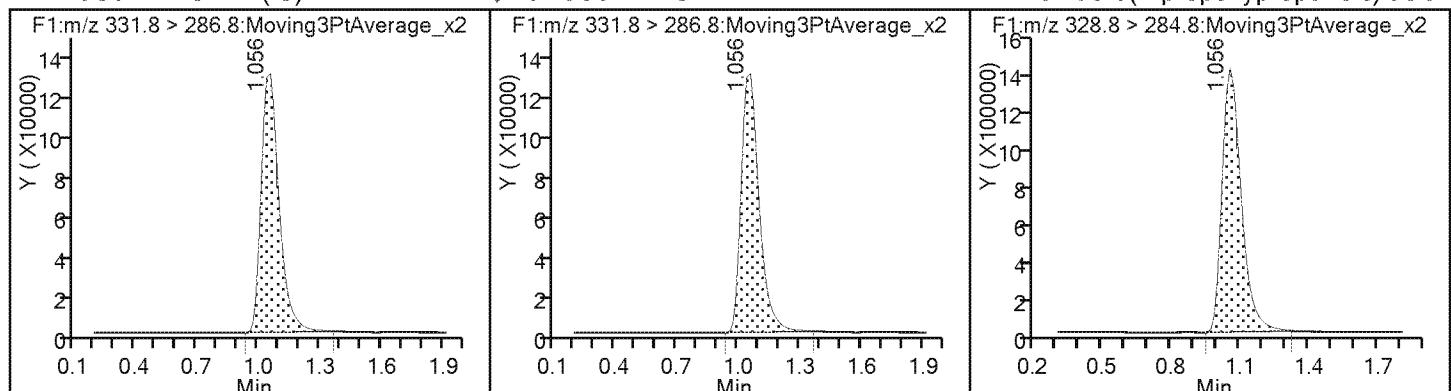
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

* 2 13C3 HFPO-DA (IS)

\$ 3 13C3 HFPO-DA

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Lab Sample ID: CCV 280-407567/18

Calibration Date: 03/12/2018 09:12

Instrument ID: LC LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C12018.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		0.9658		9.04	10.0	-9.6	20.0
13C3 HFPO-DA	Ave	74660	55461		7.43	10.0	-25.7	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12018.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2018 09:12:45 ALS Bottle#: 4 Worklist Smp#: 18
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1

Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 554608 7.43 2070
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 1.000 554608 10.0 2070
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.042 1.056 -0.014 1.000 535617 9.04 147

Reagents:

HFPO_CAL-6_00083 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12018.d

Injection Date: 12-Mar-2018 09:12:45 Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 18

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

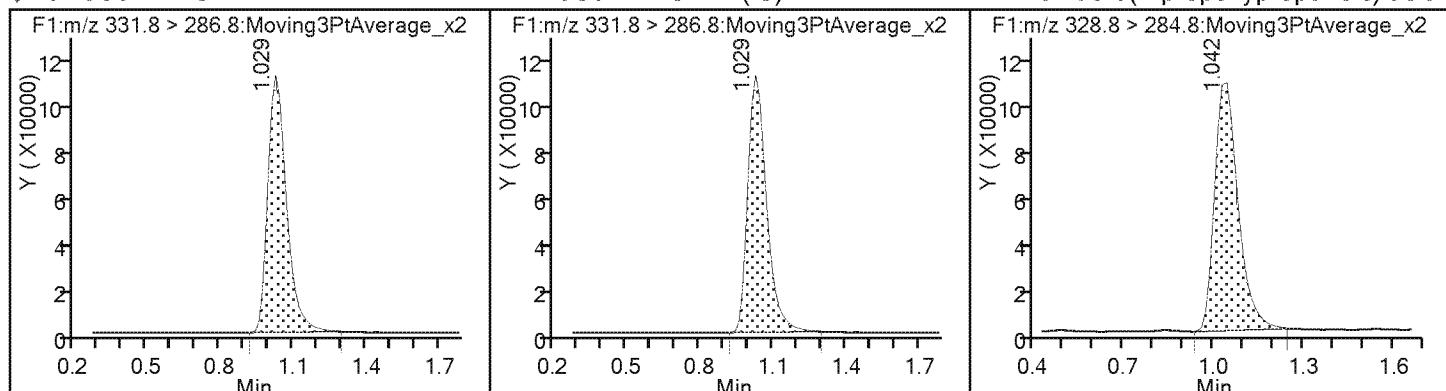
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Lab Sample ID: CCV 280-407567/28

Calibration Date: 03/12/2018 09:45

Instrument ID: LC LCMS7

Calib Start Date: 02/08/2018 13:05

GC Column: Synergi Hydro ID:

Calib End Date: 02/08/2018 13:31

Lab File ID: hfpo718C12028.d

Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		1.105		5.16	5.00	3.2	20.0
13C3 HFPO-DA	Ave	74660	55461		7.43	10.0	-25.7	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12028.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2018 09:45:17 ALS Bottle#: 3 Worklist Smp#: 28
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:21 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d
 Column 1 : Det: F1:MRM
 Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:52:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.015 1.045 -0.030 1.000 554610 7.43 1522
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.015 1.045 -0.030 1.000 554610 10.0 1522
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 306348 5.16 91.8

Reagents:

HFPO_CAL-5_00083 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfp0718C12028.d

Injection Date: 12-Mar-2018 09:45:17 Instrument ID: LC_LCMS7

Lims ID: CCV L5

Client ID:

Operator ID: JBH

ALS Bottle#: 3 Worklist Smp#: 28

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

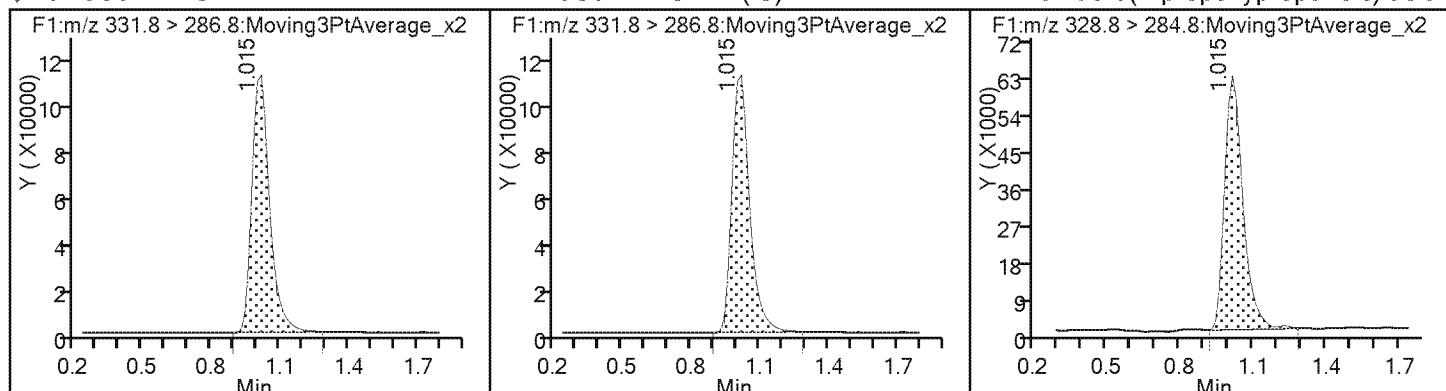
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 140-10863-1
SDG No.:
Lab Sample ID: CCV 280-407567/35 Calibration Date: 03/12/2018 10:08
Instrument ID: LC LCMS7 Calib Start Date: 02/08/2018 13:05
GC Column: Synergi Hydro ID: Calib End Date: 02/08/2018 13:31
Lab File ID: hfpo718C12035.d Conc. Units: ug/L

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
HFPO-DA	Lin1		0.9781		9.16	10.0	-8.4	20.0
13C3 HFPO-DA	Ave	74660	55347		7.41	10.0	-25.9	

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12035.d
 Lims ID: CCV L6
 Client ID:
 Sample Type: CCV
 Inject. Date: 12-Mar-2018 10:08:06 ALS Bottle#: 4 Worklist Smp#: 35
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L6
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Sublist: chrom-HFPO*sub1
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:29 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM
 Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:53:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.002 1.045 -0.043 1.000 553470 7.41 1641
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.002 1.045 -0.043 553470 10.0 1641
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 1.015 1.056 -0.041 1.000 541321 9.16 150

Reagents:

HFPO_CAL-6_00083 Amount Added: 1.00 Units: mL

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12035.d

Injection Date: 12-Mar-2018 10:08:06

Instrument ID: LC_LCMS7

Lims ID: CCV L6

Client ID:

Operator ID: JBH

ALS Bottle#: 4 Worklist Smp#: 35

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

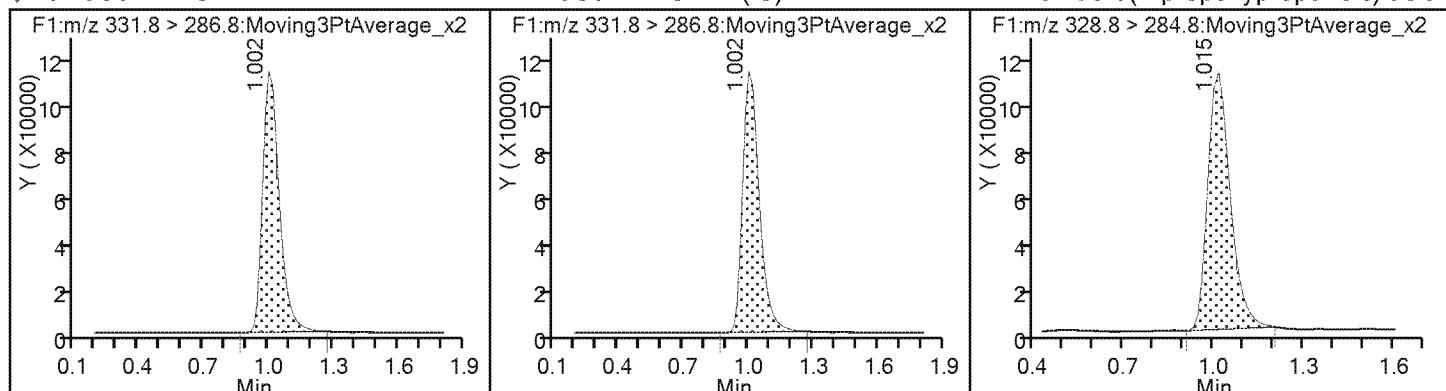
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

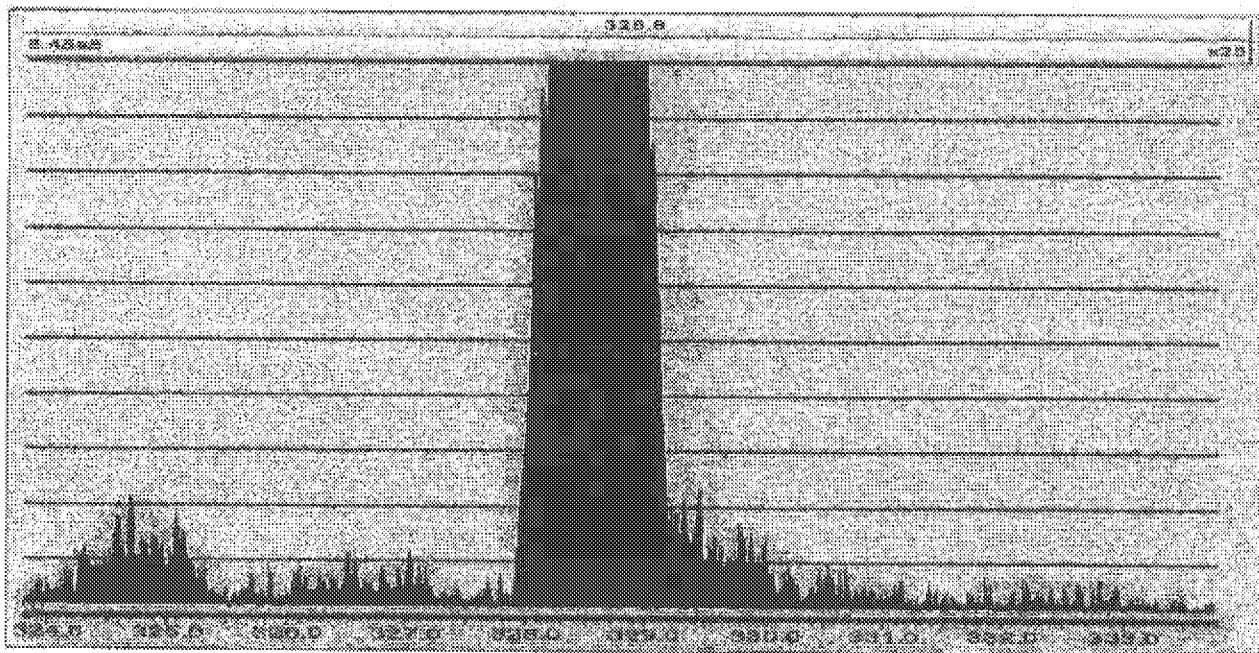
1 Perfluoro(2-propoxypropanoic) acid



File: C:\MassLynx\8321.PRO\ACQUID8HFPO.MRM.lpr

Instrument: XEVO-TQMSIVBA453

Printed: Monday, March 12, 2018 08:05:24 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
MS1 Scan	823.00	333.00	
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.50	0.53	
Cone (V)	10.00	-21.06	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	120	
Desolvation Temperature (°C)	200	200	
Cone Gas Flow (L/Hr)	50	49	
Desolvation Gas Flow (L/Hr)	800	785	
Collision Gas Flow (mL/Min)	0.15	0.04	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.8		
Ion Energy 1	0.7	0.7	0.7
MS Mode Collision Energy	7.00		
MSMS Mode Collision Energy	20.00		
MS Mode Entrance	0.50		
MS Mode Exit	0.50		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.50		
Gas On MSMS Mode Exit	0.50		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave MS Mode Entrance	0.50		
ScanWave MS Mode Exit	0.50		
ScanWave MSMS Mode Entrance	0.50		
ScanWave MSMS Mode Exit	0.50		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

File: C:\MassLynx\8321.PRO\ACQUIDBVHFFPOMRM.ipr

Instrument: XEVO-TQMSIVBA453

Printed: Monday, March 12, 2018 08:05:24 Mountain Daylight Time

Multplier 623.81
Active Reservoir A

Pressure Gauges

Collision Cell Pressure (mbar) 7.830201e-005

Instrument Configuration

Automatic Mode

MS Inter-scan delay (secs) 0.005
Polarity/Mode switch Inter-scan delay (secs) 0.020
Enhanced Inter-scan delay (secs) 0.020
Inter-channel delay - See Tables

MS 1 Delay Table:

R	delay
<= 0.500	0.005
<= 2.000	0.008
<= 4.000	0.010
<= 11.000	0.012
> 11.000	0.014

C:\wda\POVM

3/12/18

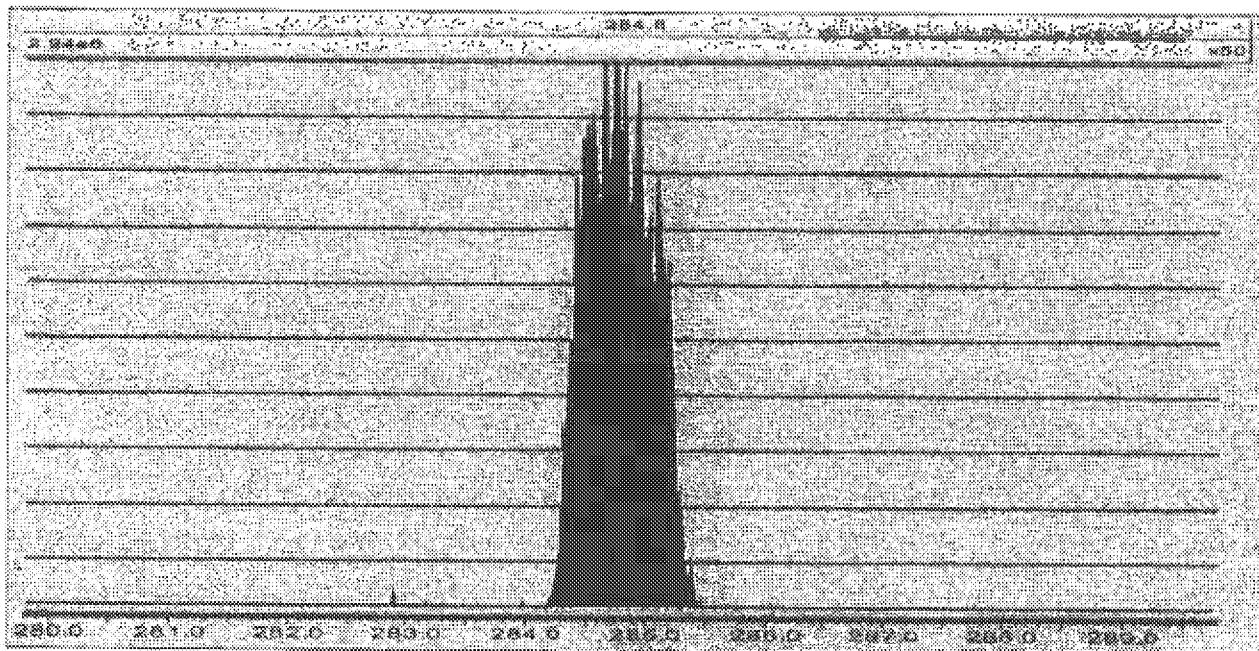
MS 2 Delay Table:

R	delay
<= 8.000	0.008
<= 25.000	0.006
> 25.000	0.007

File: C:\MassLynx\8821.PRO\ACQUDBHFPOMRM.lpr

Instrument: XEVO-TQMS\IVBA463

Printed: Monday, March 12, 2018 08:06:05 Mountain Daylight Time



Type	Start Mass	End Mass	Set Mass
Daughter Scan	279.80	289.80	328.80
Source (ES-)	Settings	Readbacks	
Capillary (kV)	0.50	0.52	
Cone (V)	10.00	-21.08	
Extractor (V)	3.00	-10.61	
Source Temperature (°C)	120	120	
Desolvation Temperature (°C)	200	200	
Cone Gas Flow (L/Hr)	50	50	
Desolvation Gas Flow (L/Hr)	800	791	
Collision Gas Flow (mL/Min)	0.15	0.14	
Analyser	Settings	Readbacks	
LM 1 Resolution	2.8		
HM 1 Resolution	14.8		
Ion Energy 1	0.7		
MS Mode Collision Energy	7.00		Judah POM
MSMS Mode Collision Energy	20.00		3/12/18
MS Mode Entrance	0.50		
MS Mode Exit	0.60		
Gas On MS Mode Entrance	0.50		
Gas On MS Mode Exit	0.50		
Gas On MSMS Mode Entrance	0.60		
Gas On MSMS Mode Exit	0.60		
Gas Off MS Mode Entrance	30.00		
Gas Off MS Mode Exit	30.00		
Gas Off MSMS Mode Entrance	2.00		
Gas Off MSMS Mode Exit	2.00		
ScanWave MS Mode Entrance	0.50		
ScanWave MS Mode Exit	0.60		
ScanWave MSMS Mode Entrance	0.50		
ScanWave MSMS Mode Exit	0.50		
LM 2 Resolution	2.9		
HM 2 Resolution	14.7		
Ion Energy 2	0.3		

File: c:\masslynx\8321.prolacquedb\rfpo.exp

Printed: Monday, March 12, 2018 10:32:13 Mountain Daylight Time

Creation Time Fri 18 Nov 2016 09:08:40
Instrument Identifier XEVO-TQMS\WBA483
Version Number 1.0
Duration (min) 2.0
Calibration Filename C:\MassLynx\IntellิStart\Results\Unit Mass Resolution\Calibration_20100811

2.cal
Solvent Delay Divert Valve Enabled 0
Number Of Functions 1

Function 1 : MRM of 2 mass pairs, Time 0.00 to 2.00, ES-

Type MRM
Ion Mode ES-
Inter Channel Delay (sec) -1.000
InterScan Time (sec) -1.000
Span (Da) 0.5
Start Time (min) 0.0
End Time (min) 2.0

Ch	Prmt(Da)	Dau(Da)	Dwell(s)	Cons(V)	Coll(eV)	Delay(s)	Compound
1	328.80	284.80	0.400	10.00	7.00	-1.000	RFPO
2	331.80	286.80	0.400	10.00	7.00	-1.000	RFPO is

d\ndeParr

3/13/18.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1
SDG No.:
Client Sample ID: Lab Sample ID: MB 280-406765/1-A
Matrix: Air Lab File ID: hfpo718C12019.d
Analysis Method: 8321A Date Collected:
Extraction Method: None Date Extracted: 03/11/2018 10:52
Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:16
Con. Extract Vol.: 5 (mL) Dilution Factor: 1
Injection Volume: 20 (uL) GC Column: Synergi Hydro ID:
% Moisture: GPC Cleanup: (Y/N) N
Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	ND		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	94		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12019.d
 Lims ID: MB 280-406765/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 12-Mar-2018 09:16:02 ALS Bottle#: 18 Worklist Smp#: 19
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-406765/1-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 1.029 1.045 -0.016 1.000 701542 9.40 2791
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 1.029 1.045 -0.016 701542 10.0 2791

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12019.d

Injection Date: 12-Mar-2018 09:16:02 Instrument ID: LC_LCMS7

Lims ID: MB 280-406765/1-A

Client ID:

Operator ID: JBH

ALS Bottle#: 18 Worklist Smp#: 19

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

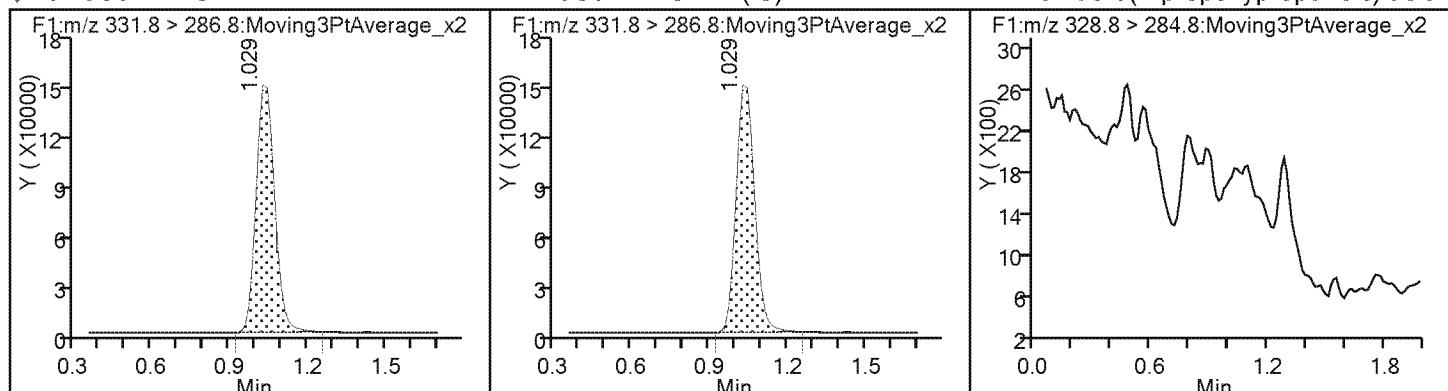
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid (ND)



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12019.d
 Lims ID: MB 280-406765/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 12-Mar-2018 09:16:02 ALS Bottle#: 18 Worklist Smp#: 19
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: MB280-406765/1-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.40	93.97

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCS 280-406765/2-A

Matrix: Air Lab File ID: hfpo718C12020.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:19

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.05486		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	90		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12020.d
 Lims ID: LCS 280-406765/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 12-Mar-2018 09:19:17 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-406765/2-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 668790 8.96 3108
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 668790 10.0 3108
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 783092 11.0 306

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12020.d

Injection Date: 12-Mar-2018 09:19:17

Instrument ID: LC_LCMS7

Lims ID: LCS 280-406765/2-A

Client ID:

Operator ID: JBH

ALS Bottle#: 19 Worklist Smp#: 20

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

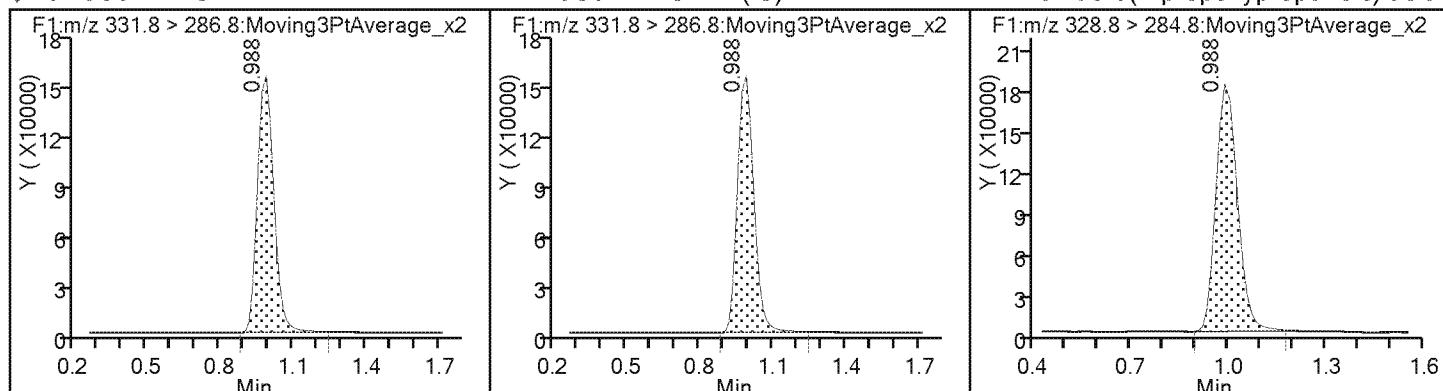
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12020.d
 Lims ID: LCS 280-406765/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 12-Mar-2018 09:19:17 ALS Bottle#: 19 Worklist Smp#: 20
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCS280-406765/2-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.96	89.58

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCSD 280-406765/14-A

Matrix: Air Lab File ID: hfpo718C12021.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:22

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.05420		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	92		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12021.d
 Lims ID: LCSD 280-406765/14-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 12-Mar-2018 09:22:32 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-406765/14-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.988 1.045 -0.057 1.000 683235 9.15 2358
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.988 1.045 -0.057 1.000 683235 10.0 2358
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 790356 10.8 260

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfpo718C12021.d

Injection Date: 12-Mar-2018 09:22:32 Instrument ID: LC_LCMS7

Lims ID: LCSD 280-406765/14-A

Client ID:

Operator ID: JBH

ALS Bottle#: 20 Worklist Smp#: 21

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

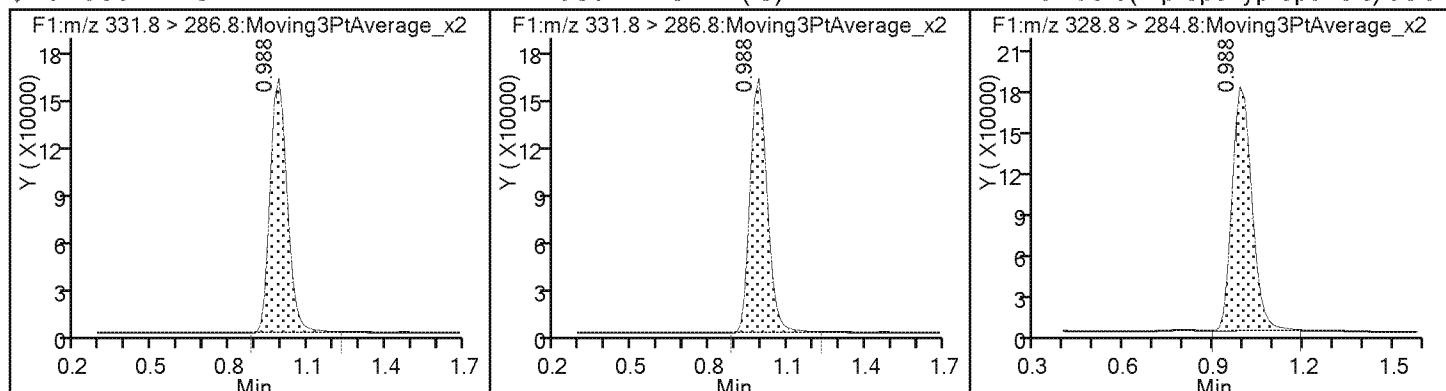
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12021.d
 Lims ID: LCSD 280-406765/14-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 12-Mar-2018 09:22:32 ALS Bottle#: 20 Worklist Smp#: 21
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LCSD280-406765/14-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	9.15	91.51

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 140-10863-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LLCS 280-406765/15-A

Matrix: Air Lab File ID: hfpo718C12022.d

Analysis Method: 8321A Date Collected: _____

Extraction Method: None Date Extracted: 03/11/2018 10:52

Sample wt/vol: 1 (Sample) Date Analyzed: 03/12/2018 09:25

Con. Extract Vol.: 5 (mL) Dilution Factor: 1

Injection Volume: 20 (uL) GC Column: Synergi Hydro ID: _____

% Moisture: GPC Cleanup: (Y/N) N

Analysis Batch No.: 407567 Units: ug/Sample

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
13252-13-6	HFPO-DA	0.004384		0.00250	0.000128

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL02255	13C3 HFPO-DA	87		50-200

TestAmerica Denver
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12022.d
 Lims ID: LLCS 280-406765/15-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 12-Mar-2018 09:25:47 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-406765/15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ug/l	S/N	Flags
--------	----	--------	--------	--------	----------	-------------	-----	-------

\$ 3 13C3 HFPO-DA
 331.8 > 286.8 0.975 1.045 -0.070 1.000 648824 8.69 2403
 * 2 13C3 HFPO-DA (IS)
 331.8 > 286.8 0.975 1.045 -0.070 648824 10.0 2403
 1 Perfluoro(2-propoxypropanoic) acid
 328.8 > 284.8 0.988 1.056 -0.068 1.000 62868 0.8769 21.3

TestAmerica Denver

Data File: \\ChromNA\\Denver\\ChromData\\LC_LCMS7\\20180312-67919.b\\hfp0718C12022.d

Injection Date: 12-Mar-2018 09:25:47 Instrument ID: LC_LCMS7

Lims ID: LLCS 280-406765/15-A

Client ID:

Operator ID: JBH

ALS Bottle#: 21 Worklist Smp#: 22

Injection Vol: 20.0 ul

Dil. Factor: 1.0000

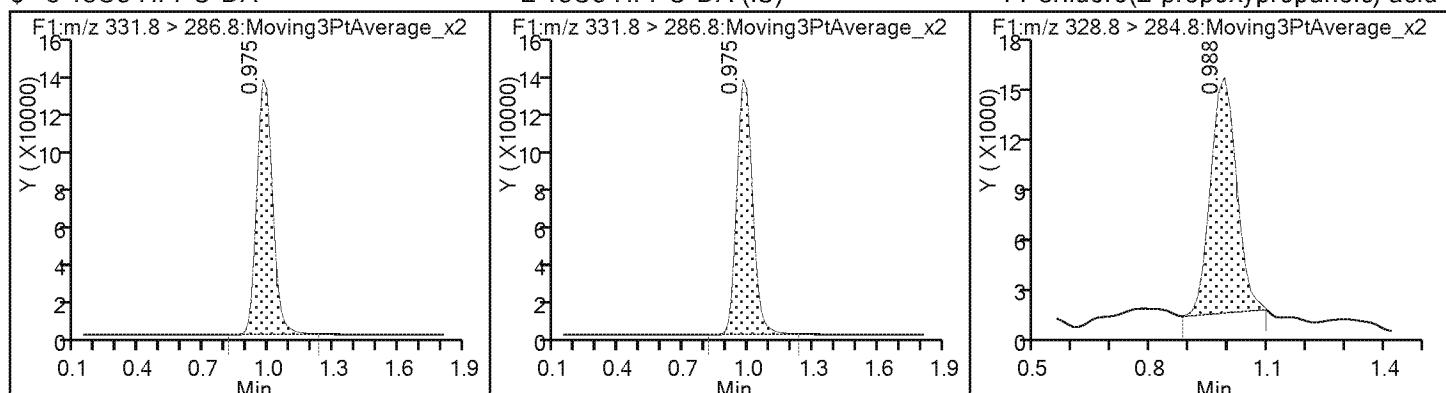
Method: HFPO

Limit Group: LC - 8321A_HFPO_Du

\$ 3 13C3 HFPO-DA

* 2 13C3 HFPO-DA (IS)

1 Perfluoro(2-propoxypropanoic) acid



TestAmerica Denver
Recovery Report

Data File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\hfpo718C12022.d
 Lims ID: LLCS 280-406765/15-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 12-Mar-2018 09:25:47 ALS Bottle#: 21 Worklist Smp#: 22
 Injection Vol: 20.0 ul Dil. Factor: 1.0000
 Sample Info: LLCS280-406765/15-A
 Misc. Info.: HFPO18C12
 Operator ID: JBH Instrument ID: LC_LCMS7
 Method: \\ChromNA\Denver\ChromData\LC_LCMS7\20180312-67919.b\HFPO.m
 Limit Group: LC - 8321A_HFPO_Du
 Last Update: 12-Mar-2018 10:54:04 Calib Date: 08-Feb-2018 13:31:32
 Integrator: Picker
 Quant Method: Internal/External Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Denver\ChromData\LC_LCMS7\20180208-67079.b\hfpo718B08042.d

Column 1 : Det: F1:MRM

Process Host: XAWRK016

First Level Reviewer: meyera Date: 12-Mar-2018 10:50:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 3 13C3 HFPO-DA	10.0	8.69	86.90

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 02/08/2018 13:05

Analysis Batch Number: 404345

End Date: 02/08/2018 13:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD001 280-404345/3 IC		02/08/2018 13:05	1	hfpo718B08034.d	Synergi Hydro
STD002 280-404345/4 IC		02/08/2018 13:08	1	hfpo718B08035.d	Synergi Hydro
STD003 280-404345/5 IC		02/08/2018 13:12	1	hfpo718B08036.d	Synergi Hydro
STD004 280-404345/6 IC		02/08/2018 13:15	1	hfpo718B08037.d	Synergi Hydro
STD005 280-404345/7 IC		02/08/2018 13:18	1	hfpo718B08038.d	Synergi Hydro
STD006 280-404345/8 IC		02/08/2018 13:21	1	hfpo718B08039.d	Synergi Hydro
STD007 280-404345/9 IC		02/08/2018 13:25	1	hfpo718B08040.d	Synergi Hydro
STD008 280-404345/10 IC		02/08/2018 13:28	1	hfpo718B08041.d	Synergi Hydro
STD009 280-404345/11 IC		02/08/2018 13:31	1	hfpo718B08042.d	Synergi Hydro

8321A

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Instrument ID: LC_LCMS7

Start Date: 03/12/2018 09:12

Analysis Batch Number: 407567

End Date: 03/12/2018 10:08

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 280-407567/18		03/12/2018 09:12	1	hfpo718C12018.d	Synergi Hydro
MB 280-406765/1-A		03/12/2018 09:16	1	hfpo718C12019.d	Synergi Hydro
LCS 280-406765/2-A		03/12/2018 09:19	1	hfpo718C12020.d	Synergi Hydro
LCSD 280-406765/14-A		03/12/2018 09:22	1	hfpo718C12021.d	Synergi Hydro
LLCS 280-406765/15-A		03/12/2018 09:25	1	hfpo718C12022.d	Synergi Hydro
ZZZZZ		03/12/2018 09:29	1		Synergi Hydro
ZZZZZ		03/12/2018 09:32	1		Synergi Hydro
ZZZZZ		03/12/2018 09:35	1		Synergi Hydro
ZZZZZ		03/12/2018 09:38	1		Synergi Hydro
ZZZZZ		03/12/2018 09:42	1		Synergi Hydro
CCV 280-407567/28		03/12/2018 09:45	1	hfpo718C12028.d	Synergi Hydro
140-10863-3		03/12/2018 09:48	1	hfpo718C12029.d	Synergi Hydro
140-10863-7		03/12/2018 09:51	1	hfpo718C12030.d	Synergi Hydro
140-10863-11		03/12/2018 09:55	1	hfpo718C12031.d	Synergi Hydro
140-10863-15		03/12/2018 09:58	1	hfpo718C12032.d	Synergi Hydro
140-10863-19		03/12/2018 10:01	1	hfpo718C12033.d	Synergi Hydro
140-10863-21		03/12/2018 10:04	1	hfpo718C12034.d	Synergi Hydro
CCV 280-407567/35		03/12/2018 10:08	1	hfpo718C12035.d	Synergi Hydro

8321A

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

Batch Method: None

Batch End Date: 03/11/18 14:19

Lab Sample ID	Client Sample ID	Method Chain	Basis	VolumeCollect	VolCondUsed	InitialAmount	FinalAmount	HFPO I.S. 00009	HFPO Spike 00004
MB 280-406765/1		None, 8321A				1 Sample	5 mL	0.1 mL	
LCS 280-406765/2		None, 8321A				1 Sample	5 mL	0.1 mL	0.1 mL
140-10863-A-3	H-2205 R1 M0010 IMP COND	None, 8321A	T	210 mL	4.2 mL	0.02 Sample	5 mL	0.1 mL	
140-10863-A-7	H-2212 R2 M0010 IMP COND	None, 8321A	T	300 mL	6.0 mL	0.02 Sample	5 mL	0.1 mL	
140-10863-A-11	H-2226 R4 M0010 IMP COND	None, 8321A	T	210 mL	4.2 mL	0.02 Sample	5 mL	0.1 mL	
140-10863-A-15	H-2233 R5 M0010 IMP COND	None, 8321A	T	200 mL	4.0 mL	0.02 Sample	5 mL	0.1 mL	
140-10863-A-19	H-2247 R QC M0010 IMP COND BT	None, 8321A	T	250 mL	250 mL	1 Sample	5 mL	0.1 mL	
140-10863-A-21	H-2250 R QC M0010 DI WATER RB	None, 8321A	T	250 mL	250 mL	1 Sample	5 mL	0.1 mL	
LCSD 280-406765/14		None, 8321A				1 Sample	5 mL	0.1 mL	0.1 mL
LLCS 280-406765/15		None, 8321A				1 Sample	5 mL	0.1 mL	0.01 mL

Lab Sample ID	Client Sample ID	Method Chain	Basis	AnalysisComment					
MB 280-406765/1		None, 8321A		250 mL					
LCS 280-406765/2		None, 8321A		250 mL					
140-10863-A-3	H-2205 R1 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 269.6g, tare weight- 26.9g					
140-10863-A-7	H-2212 R2 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 267.3g, tare weight- 26.5g					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8321A

Page 1 of 3

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

Batch Method: None

Batch End Date: 03/11/18 14:19

Lab Sample ID	Client Sample ID	Method Chain	Basis	Analysis Comment					
140-10863-A-11	H-2226 R4 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 276.4g, tare weight- 27.5g					
140-10863-A-15	H-2233 R5 M0010 IMP COND	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 272.5g, tare weight- 27.5g					
140-10863-A-19	H-2247 R QC M0010 IMP COND BT	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight-267.4g, tare weight 27.1g					
140-10863-A-21	H-2250 R QC M0010 DI WATER RB	None, 8321A	T	brought up to 250mL for Denver lab to extract Gross weight- 276.4g, tare weight 35.1g					
LCSD 280-406765/14		None, 8321A		250 mL					
LLCS 280-406765/15		None, 8321A		250 mL					

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

8321A

Page 2 of 3

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Denver

Job No.: 140-10863-1

SDG No.:

Batch Number: 406765

Batch Start Date: 03/11/18 10:52

Batch Analyst: Atkinson, Hannah M

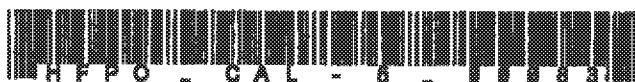
Batch Method: None

Batch End Date: 03/11/18 14:19

Batch Notes	
Acid ID	2%FormicAcid_147
Balance ID	24350888(Denver)
Batch Comment	Batch originated by David Stout who brought samples to 250mL Reviewer:HA
Elution Solution ID	10%NH4OH_123
Extraction End time	12:40
Extraction End Date	03/11/2018
Extraction Start time	11:22
Extraction Start Date	03/11/2018
H2O ID	HPLC_water_867
Pipette/Syringe/Dispenser ID	m2. spe-1, syringe
Solvent	Methanol_196
SPE Cartridge Lot ID	S308-0079
SPE Cartridge Type	strata-x-aw-8BSO38FCH
Analyst ID - Spike Analyst	HA
Analyst ID - Spike Witness Analyst	HA

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.



Reagent ID: HFPO_CAL-5_00083

Description:	level5	Expiration Date:	03/21/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H2O
Creation Date:	03/07/2018	Solvent Lot:	00016
Open Date:			
Container(s):	4891513		
Comment:	level-5		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO_I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO_I.S._00010	03/06/2018	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropanoic) acid	HFPO_Spike_00008	03/07/2018	0.50000	ug/mL	5.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO_I.S._00010	Internal Standard for HFPO 0.8ug/ml		03/06/18				20.00000	uL
HFPO_Spike_00008	HFPO LOS/Calibration Spike 0.8ug/ml		03/07/18				10.00000	uL

July 2018

7/13/18



Reagent ID: **HFPO_CAL-6_00083**

Description:	level6	Expiration Date:	03/21/2018
No. of Bottles:	1	Laboratory:	TestAmerica Denver
Storage Location:	LCMS	Prepared By:	Meyer, Andrew GC
Reagent Volume:	1.000 mL	Solvent:	80:20 Methanol : H ₂ O
Creation Date:	03/07/2018	Solvent Lot:	00018
Open Date:			
Container(s):	4991514		
Comment:	level-6		

Reagent Analyte Information

Analyte	Source ID	Source Exp. Date	Source Conc.	Source Conc. Units	Final Conc.	Final Conc. Units
13C3 HFPO-DA	HFPO I.S._00010	03/08/2018	0.50000	ug/mL	10.00000	ug/L
13C3 HFPO-DA (IS)	HFPO I.S._00010	03/08/2018	0.50000	ug/mL	10.00000	ug/L
Perfluoro(2-propoxypropenoic) acid	HFPO Spike_00008	03/07/2018	0.50000	ug/mL	10.00000	ug/L

Source Reagents

Reagent	Description	Type	Expiration	Vendor	Vendor Lot #	Vendor Cat Lot #	Volume Used	Volume Units
HFPO I.S._00010	Internal Standard for HFPO 0.5ug/ml		03/08/18				20.00000	uL
HFPO Spike_00008	HFPO LC/Calibration Spike 0.5ug/ml		03/07/18				20.00000	uL

chudz@tm
2/13/18

APPENDIX D
SAMPLE CALCULATIONS

SAMPLE CALCULATIONS FOR
FLOW, MOISTURE AND ISO

Client: Chemours
Test Number: Run 1 - Hydrolysis
Test Location: PPA Stack

Plant: Fayetteville, NC
Test Date: 3/1/2018
Test Period: 0920-1114

1. Volume of dry gas sampled at standard conditions (68 deg F, 29.92 in. Hg), dscf.

$$Vm(\text{std}) = \frac{\frac{17.64 \times Y \times Vm \times (Pb + \frac{\Delta H}{13.6})}{(Tm + 460)}}{17.64 \times 0.9916 \times 46.050 \times (29.84 + \frac{0.864}{13.6})} = 45.801$$

Where:

Vm(std) =	Volume of gas sample measured by the dry gas meter, corrected to standard conditions, dscf.
Vm =	Volume of gas sample measured by the dry gas meter at meter conditions, dcf.
Pb =	Barometric Pressure, in Hg.
delt H =	Average pressure drop across the orifice meter, in H ₂ O
Tm =	Average dry gas meter temperature , deg F.
Y =	Dry gas meter calibration factor.
17.64 =	Factor that includes ratio of standard temperature (528 deg R) to standard pressure (29.92 in. Hg), deg R/in. Hg.
13.6 =	Specific gravity of mercury.

2. Volume of water vapor in the gas sample corrected to standard conditions, scf.

$$Vw(\text{std}) = \frac{(0.04707 \times Vwc) + (0.04715 \times Wwsg)}{(0.04707 \times 11.0) + (0.04715 \times 13.4)} = 1.150$$

Where:

Vw(std) =	Volume of water vapor in the gas sample corrected to standard conditions, scf.
Vwc =	Volume of liquid condensed in impingers, ml.
Wwsg =	Weight of water vapor collected in silica gel, g.
0.04707 =	Factor which includes the density of water (0.002201 lb/ml), the molecular weight of water (18.0 lb/lb-mole), the ideal gas constant 21.85 (in. Hg) (ft ³)/lb-mole)(deg R); absolute temperature at standard conditions (528 deg R), absolute pressure at standard conditions (29.92 in. Hg), ft ³ /ml.
0.04715 =	Factor which includes the molecular weight of water (18.0 lb/lb-mole), the ideal gas constant 21.85 (in. Hg) (ft ³)/lb-mole)(deg R); absolute temperature at standard conditions (528 deg R), absolute pressure at standard conditions (29.92 in. Hg), and 453.6 g/lb, ft ³ /g.

3. Moisture content

$$bws = \frac{Vw(\text{std})}{Vw(\text{std}) + Vm(\text{std})}$$

$$bws = \frac{1.150}{1.150 + 45.801} = 0.024$$

Where:

bws = Proportion of water vapor, by volume, in the gas stream, dimensionless.

4. Mole fraction of dry gas.

$$Md = 1 - bws$$

$$Md = 1 - 0.024 = 0.976$$

Where:

Md = Mole fraction of dry gas, dimensionless.

5. Dry molecular weight of gas stream, lb/lb-mole.

$$MWd = (0.440 \times \% \text{ CO}_2) + (0.320 \times \% \text{ O}_2) + (0.280 \times (\% \text{ N}_2 + \% \text{ CO}))$$

$$MWd = (0.440 \times 0.0) + (0.320 \times 20.9) + (0.280 \times (79.1 + 0.00))$$

$$= 28.84$$

Where:

MWd = Dry molecular weight, lb/lb-mole.
 $\% \text{ CO}_2$ = Percent carbon dioxide by volume, dry basis.
 $\% \text{ O}_2$ = Percent oxygen by volume, dry basis.
 $\% \text{ N}_2$ = Percent nitrogen by volume, dry basis.
 $\% \text{ CO}$ = Percent carbon monoxide by volume, dry basis.
 0.440 = Molecular weight of carbon dioxide, divided by 100.
 0.320 = Molecular weight of oxygen, divided by 100.
 0.280 = Molecular weight of nitrogen or carbon monoxide, divided by 100.

6. Actual molecular weight of gas stream (wet basis), lb/lb-mole.

$$MWs = (MWd \times Md) + (18 \times (1 - Md))$$

$$MWs = (28.84 \times 0.976) + (18 \times (1 - 0.976)) = 28.57$$

Where:

MWs = Molecular weight of wet gas, lb/lb-mole.
 18 = Molecular weight of water, lb/lb-mole.

7. Average velocity of gas stream at actual conditions, ft/sec.

$$Vs = \frac{85.49 \times Cp \times ((\Delta p)^{1/2}) \text{avg} \times (\frac{\text{Ts (avg)}}{Ps \times MWs})^{1/2}}{538}$$

$$Vs = \frac{85.49 \times 0.84 \times 0.743942 \times (\frac{538}{29.63 \times 28.57})^{1/2}}{42.6}$$

Where:

$$Vs = \frac{\text{Average gas stream velocity, ft/sec.}}{(\text{lb/lb-mole})(\text{in. Hg})^{1/2}}$$

$$85.49 = \frac{\text{Pitot tube constant, ft/sec} \times \text{-----}}{(\text{deg R})(\text{in H}_2\text{O})}$$

Cp = Pitot tube coefficient, dimensionless.

Ts = Absolute gas stream temperature, deg R = Ts, deg F + 460.

$$Ps = \frac{\text{Absolute gas stack pressure, in. Hg.} = Pb + \text{-----}}{13.6}$$

Δp = Velocity head of stack, in. H₂O

8. Average gas stream volumetric flowrate at actual conditions, wacf/min.

$$Qs(\text{act}) = 60 \times Vs \times As$$

$$Qs(\text{act}) = 60 \times 42.6 \times 4.90 = 12516$$

Where:

Qs(act) = Volumetric flowrate of wet stack gas at actual conditions, wacf/min.

As = Cross-sectional area of stack, ft².

60 = Conversion factor from seconds to minutes.

9. Average gas stream dry volumetric flowrate at standard conditions, dscf/min.

$$Qs(\text{std}) = \frac{17.64 \times Md \times \frac{Ps}{Ts} \times Qs(\text{act})}{538}$$

$$Qs(\text{std}) = \frac{17.64 \times 0.976 \times \frac{29.63}{538} \times 12516}{11872}$$

Where:

Qs(std) = Volumetric flowrate of dry stack gas at standard conditions, dscf/min.

10. Isokinetic variation calculated from intermediate values, percent.

$$I = \frac{17.327 \times Ts \times Vm(\text{std})}{Vs \times O \times Ps \times Md \times (Dn)^2}$$
$$I = \frac{17.327 \times 538 \times 45.801}{42.6 \times 96 \times 29.63 \times 0.976 \times (0.189)^2} = 101.1$$

Where:

I =	Percent of isokinetic sampling.
O =	Total sampling time, minutes.
Dn =	Diameter of nozzle, inches.
17.327 =	Factor which includes standard temperature (528 deg R), standard pressure (29.92 in. Hg), the formula for calculating area of circle $D^{2/4}$, conversion of square feet to square inches (144), conversion of seconds to minutes (60), and conversion to percent (100), $\frac{(\text{in. Hg})(\text{in}^2)(\text{min})}{(\text{deg R})(\text{ft}^2)(\text{sec})}$

**SAMPLE CALCULATIONS FOR
HFPO DIMER ACID (METHOD 0010)**

Client: Chemours
Test Number: Run 1 - Hydolysis
Test Location: PPA

Plant: Fayetteville, NC
Test Date: 3/1/2018
Test Period: 0920-1114

1. HFPO Dimer Acid concentration, lbs/dscf.

$$C_1 = \frac{W \times 2.2046 \times 10^{-9}}{Vm(\text{std})}$$

$$\begin{aligned} C_1 &= \frac{38316.1 \times 2.2046 \times 10^{-9}}{45.801} \\ &= 1.84E-06 \end{aligned}$$

Where:

W = Weight of HFPO Dimer Acid collected in sample in ug.

C₁ = HFPO Dimer Acid concentration, lbs/dscf.

2.2046x10⁻⁹ = Conversion factor from ug to lbs.

2. HFPO Dimer Acid concentration, ug/dscm.

$$C_2 = W / (Vm(\text{std}) \times 0.02832)$$

$$\begin{aligned} C_2 &= 38316.1 / (45.801 \times 0.02832) \\ &= 29537.4 \end{aligned}$$

Where:

C₂ = HFPO Dimer Acid concentration, ug/dscm.

0.02832 = Conversion factor from cubic feet to cubic meters.

3. HFPO Dimer Acid mass emission rate, lb/hr.

$$\begin{aligned} \text{PMR1} &= C_1 \times Q_s(\text{std}) \times 60 \text{ min/hr} \\ \text{PMR1} &= 1.84\text{E-06} \times 11872 \times 60 \\ &= 1.31\text{E+00} \end{aligned}$$

Where:

PMR1 = HFPO Dimer Acid mass emission rate, lb/hr.

4. HFPO Dimer Acid mass emission rate, g/sec.

$$\begin{aligned} \text{PMR2} &= \text{PMR1} \times 453.59 / 3600 \\ \text{PMR2} &= 1.31\text{E+00} \times 453.59 / 3600 \\ &= 1.65\text{E-01} \end{aligned}$$

Where:

PMR2 = HFPO Dimer Acid mass emission rate, g/sec.

453 = Conversion factor from pounds to grams.

3600 = Conversion factor from hours to seconds.

APPENDIX E
EQUIPMENT CALIBRATION RECORDS

Long Cal and Temperature Cal Datasheet for Standard Dry Gas Meter Console

Calibrator _____ PM
Date _____ 4-Feb-18
Meter Box Number _____ 31
Wet Test Meter Number _____ P-2952
Ambient Temp _____ 71
Temp Reference Source _____ Thermocouple Simulator
(Accuracy +/- 1°F)

Setting		Gas Volume		Temperatures				Calibration Results	
Orifice	Dry Test Meter	Wet Test Meter	Dry gas Meter	Wet Test Meter		Dry Gas Meter		Y	ΔH
Manometer in H ₂ O (ΔH)	ft ³ (V _w)	ft ³ (V _d)	°F (T _w)	Outlet, °F (T _d)	Inlet, °F (T _{d_o})	Average, °F (T _d)	Time, min (O)		
0.5	5.0	449.372	70.0	69.00	69.00	69.00	13.0	0.9976	1.9063
		454.378	70.0	71.00	71.00	70.0			
1.0	5.0	5.006	70.0	70.00	70.00	70.00	9.5	0.9972	2.0302
		454.378	70.0	71.00	71.00	71.00			
1.5	10.07	459.394	70.0	72.00	72.00	71.5	16.0	0.9918	2.1197
		5.016	70.0	71.50	71.50	71.50			
2.0	10.0	459.394	70.0	74.00	74.00	74.00	13.7	0.9894	2.0992
		469.586	70.0	74.00	74.00	74.00			
3.0	10.0	10.143	70.0	75.00	75.00	74.5	11.3	0.9819	2.1383
		479.729	70.0	74.50	74.50	75.00			
		479.729	70.0	76.00	76.00	75.5	11.3	0.9916	2.0587
		489.943	70.0	75.50	75.50	75.50			
		10.214							

$$Y = \frac{Vw * Pb * (td + 460)}{Vd * \left[Pb + \frac{\Delta H}{13.6} \right] * (tw + 460)}$$

$$\Delta H = \frac{\left[0.0317 * \Delta H \right] * \left[\frac{(tw + 460) * O}{Ww} \right]^2}{Pb * (td + 460)}$$

Vw - Gas Volume passing through the wet test meter
 Vd - Gas Volume passing through the dry gas meter
 Tw - Temp of gas in the wet test meter
 Tdi - Temp of the inlet gas of the dry gas meter
 Tdo - Temp of the outlet gas of the dry gas meter
 Tda - Average temp of the gas in the dry gas meter
 0 - Time of calibration run
 Pb - Barometric Pressure
 ΔH - Pressure differential at orifice
 Y - Ratio of accuracy of wet meter to dry gas meter

Reference Temperature		Temperature Reading from Individual Thermocouple Input ¹						Average Temperature Reading		Temp Difference ² (%)	
Select Temperature	○ °C	Channel Number						○ °F	○ °C	○ °F	○ °C
○ °C	○ °F	1	2	3	4	5	6	○ °F	○ °C	○ °F	○ °C
32	32	32	32	32	32	32	32	32.0	0.0%	32.0	0.0%
212	212	212	213	213	212	212	212	212.4	-0.1%	212.4	-0.1%
932	932	932	933	933	932	932	932	932.4	0.0%	932.4	0.0%
1832	1832	1832	1833	1833	1832	1832	1832	1832.4	0.0%	1832.4	0.0%

Long Cal and Temperature Cal Datasheet for Standard Dry Gas Meter Console

Calibrator PM
Date 20-Jan-18

Meter Box Number 29
Wet Test Meter Number P-2952

Ambient Temp 71
Thermocouple Simulator
(Accuracy +/- 1°F)
Temp Reference Source

Dry Gas Meter Number 17176777

Setting Orifice Manometer in H ₂ O (ΔH)	Gas Volume		Wet Test Meter			Dry Gas Meter			Temperatures		
	Wet Test Meter	Dry gas Meter	ft ³ (Vw)	ft ³ (Vd)	°F (Tw)	Outlet, °F (Td _o)	Inlet, °F (Td _i)	Average, °F (Td)	Time, min (O)	Y	ΔH
0.5	5.0	744.952	739.961	70.0	67.00	67.00	69.00	68.0	13.0	0.9968	1.8982
		4.991			69.00		68.00				
1.0	10.0	744.952	754.973	70.0	70.00	70.00	73.00	71.5	18.40	0.9983	1.8888
		754.973		10.021	71.50	71.50	73.00				
1.5	11.0	766.121	754.973	70.0	75.00	75.00	75.00	74.0	17.3	0.9905	2.0602
		766.121	11.148	74.00	74.00	74.00	75.00				
2.0	10.1	776.363	766.121	70.0	77.00	77.00	77.00	76.0	13.6	0.9924	2.0061
		776.363	10.242	76.00	76.00	76.00	77.00				
3.0	10.4	786.961	776.363	70.0	79.00	79.00	79.00	78.0	11.5	0.9889	2.0217
		786.961	10.598	78.00	78.00	78.00	78.00				
								Average	0.9934	1.9750	

Vw - Gas Volume passing through the wet test meter

Vd - Gas Volume passing through the dry gas meter

Tw - Temp of gas in the wet test meter

Tdi - Temp of the inlet gas of the dry gas meter

Tdo - Temp of the outlet gas of the dry gas meter

Td - Average temp of the gas in the dry gas meter

0 - Time of calibration run

Pb - Barometric Pressure

ΔH - Pressure differential across
orifice

Y - Ratio of accuracy of wet test
meter to dry gas meter

$$Y = \frac{Vw * Pb * (td + 460)}{Vd * \left[Pb + \frac{(\Delta H)}{13.6} \right] * (tw + 460)}$$

$$\Delta H = \left[\frac{0.0317 * \Delta H}{Pb * (id + 460)} \right] * \left[\frac{(tw + 460) * O}{Vw} \right]^2$$

Reference Temperature	Temperature Reading from Individual Thermocouple Input ¹						Average Temperature Reading	Temp Difference (%)
	Channel Number							
<input type="radio"/> °C	<input checked="" type="radio"/> °F	1	2	3	4	5	6	
32	32	32	32	32	32	32	32	32.0
212	213	213	213	213	213	213	213	213.0
932	933	933	933	933	933	933	933	933.0
1832	1831	1831	1831	1831	1831	1831	1831	1831.0

1 - Channel Temps must agree with +/- 5°F or 3°C

2 - Acceptable Temperature Difference less than 1.5 %

$$\text{Temp Diff} = \left[\frac{\text{Reference Temp} (°F) + 460 - (\text{Test Temp} (°F) + 460)}{\text{Reference Temp} (°F) + 460} \right]$$

Type S Pitot Tube Inspection Data Form

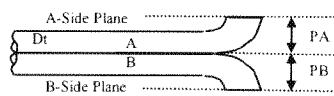
Pitot Tube Identification Number: P-563

Inspection Date 2/19/18 Individual Conducting Inspection KS

If all Criteria PASS
Cp is equal to 0.84

PASS/FAIL

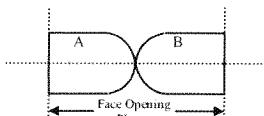
PASS
PASS



Distance to A Plane (PA) - inches 0.469
Distance to B Plane (PB) - inches 0.469
Pitot OD (D_t) - inches 0.375

$1.05 D_t < P < 1.5 D_t$

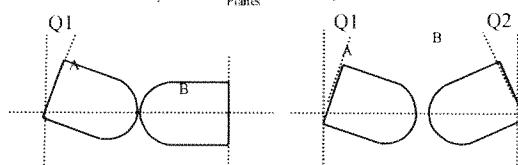
PA must Equal PB



Are Open Faces Aligned
Perpendicular to the Tube Axis

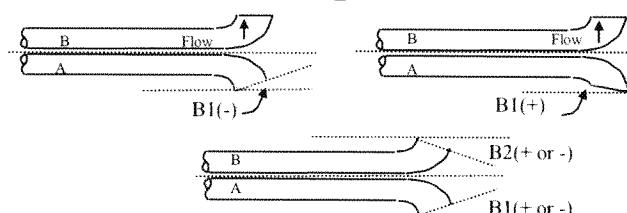
YES NO

PASS



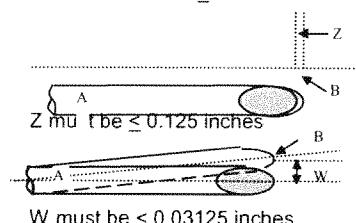
Angle of Q1 from vertical A Tube -
degrees (absolute) 1
Angle of Q2 from vertical B Tube -
degrees (absolute) 1

Q1 and Q2 must be $\leq 10^\circ$

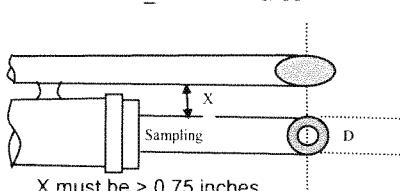


Angle of B1 from
vertical A Tube -
degrees (absolute) 2
Angle of B1 from
vertical B Tube -
degrees (absolute) 1

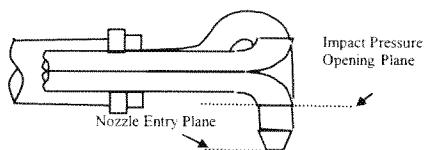
B1 or B2 must be $\leq 5^\circ$



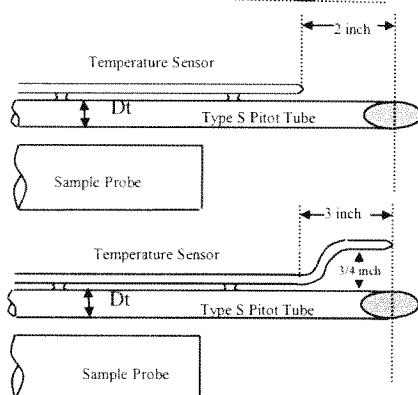
Horizontal offset between A and
B Tubes (Z) - inches 0.006 PASS
Vertical offset between A and B
Tubes (W) - inches 0.012 PASS



Distance between Sample
Nozzle and Pitot (X) - inches 0.9325 PASS



Impact Pressure
Opening Plane is
above the Nozzle
Entry Plane
 YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure
 YES NO
 NA

Thermocouple meets
the Distance Criteria
in the adjacent figure
 YES NO
 NA

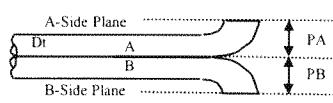
Type S Pitot Tube Inspection Data Form

Pitot Tube Identification Number: P-694

Inspection Date 2/19/18 Individual Conducting Inspection KS

If all Criteria PASS
Cp is equal to 0.84

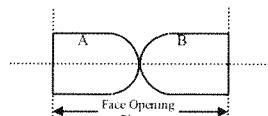
PASS/FAIL



Distance to A Plane (PA) - inches 0.432
Distance to B Plane (PB) - inches 0.432
Pitot OD (D_t) - inches 0.375

$1.05 D_t < P < 1.5 D_t$

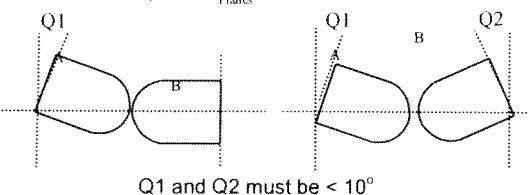
PA must Equal PB



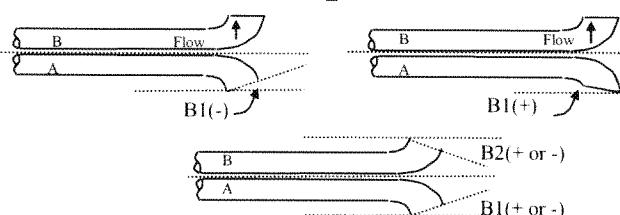
Are Open Faces Aligned
Perpendicular to the Tube Axis

YES NO

PASS

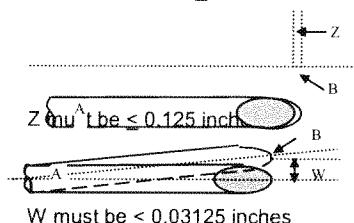


Angle of Q1 from vertical A Tube-
degrees (absolute) 4
Angle of Q2 from vertical B Tube-
degrees (absolute) 3

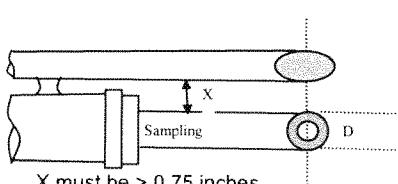


Angle of B1 from
vertical A Tube-
degrees (absolute) 4
Angle of B1 from
vertical B Tube-
degrees (absolute) 2

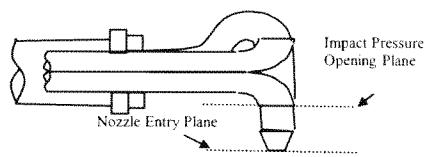
B1 or B2 must be $\leq 5^\circ$



Horizontal offset between A and
B Tubes (Z) - inches 0.024
Vertical offset between A and B
Tubes (W) - inches 0.028

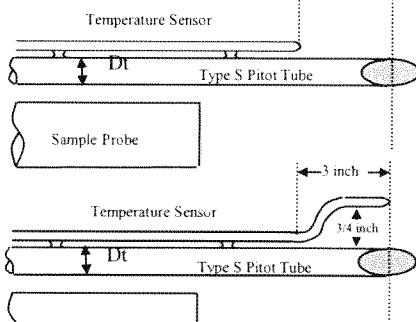


Distance between Sample
Nozzle and Pitot (X) - inches 0.962
X must be ≥ 0.75 inches



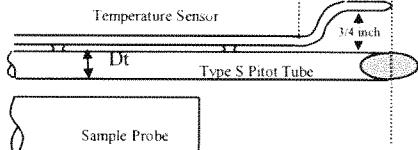
Impact Pressure
Opening Plane is
above the Nozzle
Entry Plane

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA

Type S Pitot Tube Inspection Data Form

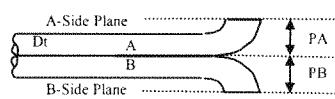
Pitot Tube Identification Number: P-695

Inspection Date 1/5/18 Individual Conducting Inspection PM

If all Criteria PASS
Cp is equal to 0.84

PASS/FAIL

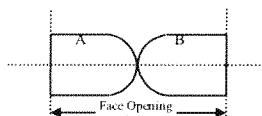
PASS
 PASS



Distance to A Plane (PA) - inches 0.46
Distance to B Plane (PB) - inches 0.46
Pitot OD (D_t) - inches 0.375

$1.05 D_t < P < 1.5 D_t$

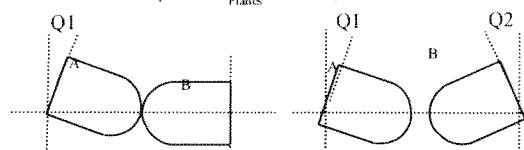
PA must Equal PB



Are Open Faces Aligned
Perpendicular to the Tube Axis

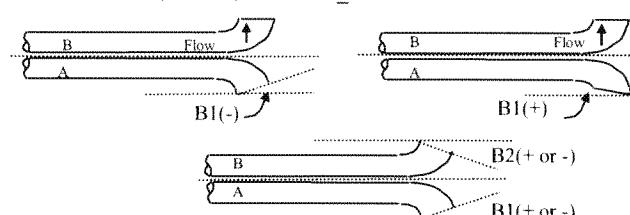
YES NO

PASS



Angle of Q1 from vertical A Tube-
degrees (absolute) 0
Angle of Q2 from vertical B Tube-
degrees (absolute) 1

Q1 and Q2 must be $\leq 10^\circ$

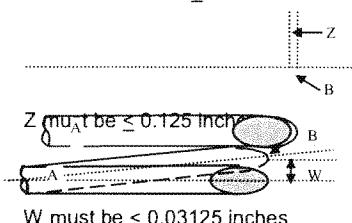


Angle of B1 from
vertical A Tube-
degrees (absolute) 0
Angle of B1 from
vertical B Tube-
degrees (absolute) 0

PASS

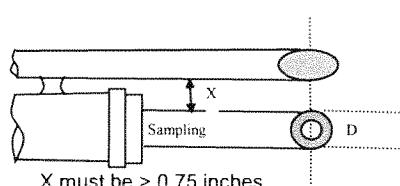
PASS

B1 or B2 must be $\leq 5^\circ$



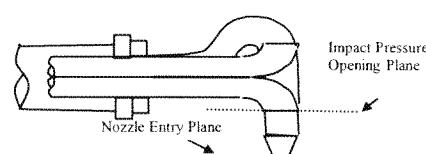
Horizontal offset between A and
B Tubes (Z) - inches 0.006 PASS

Vertical offset between A and B
Tubes (W) - inches 0.018 PASS



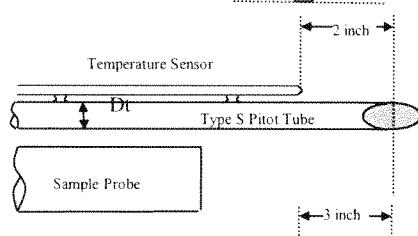
Distance between Sample
Nozzle and Pitot (X) - inches 0.78 PASS

X must be ≥ 0.75 inches



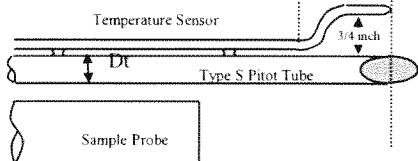
Impact Pressure
Opening Plane is
above the Nozzle
Entry Plane

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA

Type S Pitot Tube Inspection Data Form

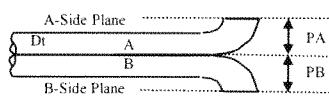
Pitot Tube Identification Number: P-697

Inspection Date 1/5/18 Individual Conducting Inspection PM

If all Criteria PASS
Cp is equal to 0.84

PASS/FAIL

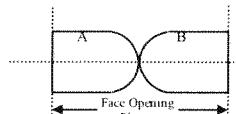
PASS
PASS



Distance to A Plane (PA) - inches 0.46
Distance to B Plane (PB) - inches 0.46
Pitot OD (D_t) - inches 0.375

$1.05 D_t < P < 1.5 D_t$

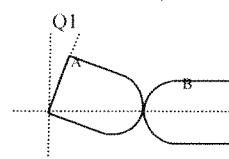
PA must Equal PB



Are Open Faces Aligned
Perpendicular to the Tube Axis

YES NO

PASS

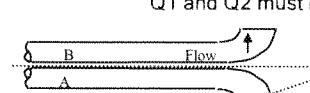


Q1 and Q2 must be $\leq 10^\circ$

Angle of Q1 from vertical A Tube-
degrees (absolute) 0
Angle of Q2 from vertical B Tube-
degrees (absolute) 0

PASS

PASS



Angle of B1 from
vertical A Tube-
degrees (absolute) 0

PASS



Angle of B1 from
vertical B Tube-
degrees (absolute) 0

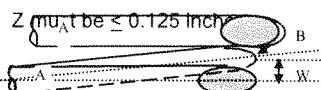
PASS

B1 or B2 must be $\leq 5^\circ$



Horizontal offset between A and
B Tubes (Z) - inches 0.007

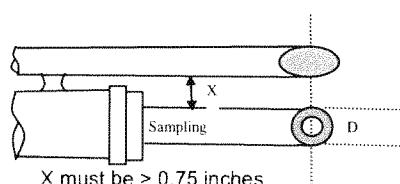
PASS



W must be ≤ 0.03125 inches

Vertical offset between A and B
Tubes (W) - inches 0.018

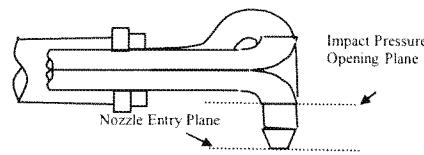
PASS



Distance between Sample
Nozzle and Pitot (X) - inches 0.8

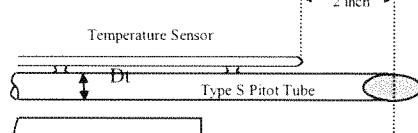
PASS

X must be ≥ 0.75 inches



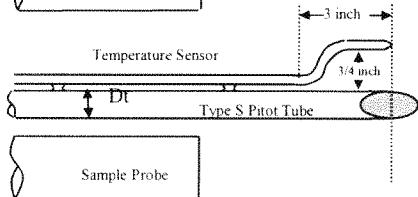
Impact Pressure
Opening Plane is
above the Nozzle
Entry Plane

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA



Thermocouple meets
the Distance Criteria
in the adjacent figure

YES NO
 NA

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E03NI79E15A00E4 Reference Number: 82-124627728-1
 Cylinder Number: CC62094 Cylinder Volume: 150.5 CF
 Laboratory: 124 - Riverton (SAP) - NJ Cylinder Pressure: 2015 PSIG
 PGVP Number: B52017 Valve Outlet: 590
 Gas Code: CO2,O2,BALN Certification Date: Jul 10, 2017

Expiration Date: Jul 10, 2025

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	9.000 %	8.911 %	G1	+/- 0.7% NIST Traceable	07/10/2017
OXYGEN	12.00 %	12.00 %	G1	+/- 0.5% NIST Traceable	07/10/2017
NITROGEN	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061336	CC360792	11.002 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 11, 2018
NTRMplus	09060208	CC262337	9.961 % OXYGEN/NITROGEN	+/- 0.3%	Nov 08, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA 510-CO2-19GYCXEG	NDIR	Jun 30, 2017
Horiba MPA 510-O2-7TWMJ041	Paramagnetic	Jul 07, 2017

Triad Data Available Upon Request



Signature on file

Approved for Release

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E03NI62E15A0224
 Cylinder Number: SG9169108
 Laboratory: 124 - Riverton (SAP) - NJ
 PGVP Number: B52017
 Gas Code: CO2,O2,BALN

Reference Number: 82-401044874-1
 Cylinder Volume: 157.2 CF
 Cylinder Pressure: 2015 PSIG
 Valve Outlet: 590
 Certification Date: Nov 18, 2017

Expiration Date: Nov 18, 2025

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON DIOXIDE	17.00 %	16.58 %	G1	+/- 0.7% NIST Traceable	11/18/2017
OXYGEN	21.00 %	21.00 %	G1	+/- 0.5% NIST Traceable	11/18/2017
NITROGEN	Balance			-	

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	12061336	CC360792	11.002 % CARBON DIOXIDE/NITROGEN	+/- 0.6%	Jan 11, 2018
NTRM	09061415	CC273526	22.53 % OXYGEN/NITROGEN	+/- 0.4%	Mar 08, 2019

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Horiba VIA 510-CO2-19GYCXEG	NDIR	Oct 30, 2017
Horiba MPA 510-O2-7TWMJ041	Paramagnetic	Oct 27, 2017

Triad Data Available Upon Request



Signature on file

Approved for Release

NOZZLE CALIBRATION DATA FORM

Date: 2/26/18

Calibrated by: SK

Where:

- 1 D_{1,2,3} = Three different nozzle diameters, inches; each diameter must be measured to nearest 0.001 in.
2 ΔD = Maximum difference between any two diameters, inches. ΔD must be ≤ 0.004 in.
3 D_{avg} = Nozzle diameter = average of D₁, D₂, and D₃.

APPENDIX F
LIST OF PROJECT PARTICIPANTS

The following WESTON employees participated in this project.

Paul Meeter	Senior Project Manager
Steve Rathfon	Team Leader
Kyle Schweitzer	Team Member
Matt Winkeler	Team Member